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AIDS

TO

SURGERY.

PART I.

BY
GEORGE BROWN, M.R.C.S., L.S.A.,
FORMERLY DEMONSTRATOR OF ANATOMY AT WESTMINSTER HOSPITAL MEDICAL
SCHOOL ; GOLD MEDALLIST (1873), CHARING CROSS HOSPITAL ; LATE
HOUSE-SURGEON AT CHARING CROSS HOSPITAL ;
AUTHOR OF "AIDS TO ANATOMY," "THE STUDENTS' CASE-BOOK," ETC.

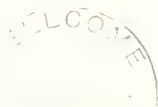
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PREFACE TO THE THIRD EDITION.

THE preparation of a New Edition of these 'Aids' for the press affords a favourable opportunity of tendering my acknowledgments to numerous correspondents who have written to express appreciation of their value in assisting in the acquisition of a knowledge of elementary surgery. Direct testimony of this kind, together with that afforded by the rapid sale of previous editions, convince me that the hope expressed in my Preface to the First Edition, viz., 'that this little work will be useful to those who are anxious to acquire knowledge,' has been to some extent realized.

G. B.

29, THREADNEEDLE STREET,
LONDON, E.C.
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CONTENTS.

	PAGE		PAGE
I. Abscess	5	XXIV. Club Foot (Kyllosis	
II. Alveolar Abscess ...	8	or Talipes)	38
III. Anal Abscess	9	XXV. Ectropion	40
IV. Perineal Abscess ...	10	XXVI. Entropion	40
V. Spinal Abscess	11	XXVII. Encephalocele ..	41
VI. Thecal Abscess	12	XXVIII. Epulis	41
VII. Boil or Furuncle ...	13	XXIX. Erysipelas	42
VIII. Carbuncle or An-		XXX. Erythema	45
thrax	14	XXXI. Erythema Nodo-	
IX. Aneurism	15	sum	47
X. Traumatic Aneur-		XXXII. Exostosis, or Bony	
nism	17	Tumour	43
XI. Arterio-Venous Aneur-		XXXIII. Fissure and Ul-	
ism	19	cer of Anus	50
XII. Aneurism by Anas-		XXXIV. Fistula in Ano	51
tomosis (Cirroid		XXXV. Fistula in Peri-	
Aneurism)	20	naeo, or Urinary	
XIII. Ankylosis	21	Fistula... ..	52
XIV. Arthritis	22	XXXVI. Galeocele	53
XV. Balanitis	25	XXXVII. Ganglion	53
XVI. Bronchocele, or		XXXVIII. Gangrene, Mor-	
Goitre	26	tification or Spha-	
XVII. Bubo, or Adeno-		celus	55
pathy	27	XXXIX. Glanders, or	
XVIII. Burns and Scalds	28	Equinia	60
XIX. Bursitis	31	XL. Epinia Mitis	62
XX. Cancrum Oris, or Gan-		XLI. Glossitis	63
grenous Stomatitis	32	XLII. Gonorrhoea, or Clap	63
XXI. Aphthous or Ulcera-		XLIII. Gleet	67
tive Stomatitis ...	33	XLIV. Gonorrhoeal Rheu-	
XXII. Compression of the		matism..	68
Brain	33	XLV. Hamatocele	69
XXIII. Concussion of the		XLVI. Hematoma Auris	70
Brain	36	XLVII. Hematuria	71

AIDS TO SURGERY.

1.—ABSCESS.

Definition.—An abscess is a *circumscribed* collection of pus contained within a layer of organised fibrinous exudation, and may occur in any of the soft tissues or in bone. The fibrinous exudation within which the pus is contained (when an abscess is fully developed) is called the *walls of the abscess*.

Varieties.—Abscesses are divided into two classes, *acute* and *chronic*. Different names are given to abscesses, according to the situation in which they occur; for example: alveolar abscess, lumbar abscess, mammary abscess, psoas abscess, etc. If an acute abscess occur in the subcutaneous cellular tissue it is called *phlegmon*.

Symptoms.—The *acute* variety is usually attended with severe constitutional disturbance. Locally, there is a sense of fulness, much pain and throbbing, heat, redness, and swelling, and, not unfrequently, the patient has shivering fits or rigors. At first the swelling is hard and tense, but as pus forms, it becomes soft, and *fluctuation* may be detected on making gentle pressure with the fingers. In the *chronic* form, the

constitutional disturbance is very slight, and the signs of inflammation, which are so marked in the acute variety, are absent. Hence they give rise to little distress, and are often unobserved until they become of large size. From the absence of heat and redness this variety is sometimes called *cold abscess*.

Causes.—Acute abscesses are generally idiopathic, but occasionally they are due to local irritation, the presence of a foreign body, follicular obstruction, or the absorption of poison. Chronic abscesses usually depend upon a scrofulous habit of body, or are due to chronic disease of bone. When occurring in scrofulous persons, the lymphatic glands are most commonly affected, especially those of the cervical region.

Terminations.—In rare cases the pus is absorbed, and the abscess entirely disappears. This is the least common, but most favourable termination. Generally the abscess “points” and bursts, discharging its contents. The walls of the abscess then contract, and the cavity gradually fills up by granulation, and heals over by cicatrisation. Sometimes the external wound does not close, and a *sinus* remains. This is frequently the case with abscesses near the anus. When the pus is deep-seated, or bound down by dense fascia or periosteum, it is unable to “point” and discharge on the surface of the body. Then, unless the abscess is opened, the pus “burrows” between the soft tissues in the direction where least resistance is offered until it opens into a mucous passage, a serous cavity, or into a joint.

Contents of an Abscess.—The fluid contained in an abscess is called pus. This varies greatly in character. It may be (*a*), healthy or laudable; (*b*), serous; (*c*), sanious; (*d*), ichorous; (*e*), curdy; or (*f*), putrid. In colour it may vary from a light yellow to green, blue, a dark red, or even black.

(*a*) *Healthy* pus is of a uniform creamy consistence,

and yellowish-white in colour, almost colourless, and generally of a slightly alkaline reaction. It consists of a thin transparent fluid (*liquor puris*) in which are suspended numerous globular corpuscles (*pus corpuscles*).

(b). *Serous pus* differs from the preceding in being more thin, and in containing fewer pus corpuscles. It indicates that the patient is in a low condition. This kind is often called *puriform fluid*.

(c). *Sanious pus*. Pus is said to be sanious when it is stained with blood.

(d). *Ichorous pus*. When the discharge from an abscess is very thin and acrid, it is said to be "ichorous."

(e) *Curdy pus* resembles the serous kind, but has floating in it white clots, and flakes of coagulated lymph.

(f) *Putrid pus* may resemble any of the other kinds in consistence and colour, but it has in addition an extremely fœtid odour, and a strongly alkaline reaction.

Treatment.—In the early stage of *acute* abscess, cold evaporating lotions or leeches may be applied locally, with a view to promote absorption. If absorption is not likely to take place, hot poultices and fomentations best promote the process of suppuration. The patient should be supported by means of generous diet, and his general condition attended to. When the abscess points and is likely to break, surgical interference is not necessary; but if the skin over the abscess is tough, or the matter is deep seated, a free incision must be made. Whenever "burrowing" is suspected, an opening to give exit to the pus should be made at once. When the abscess is due to local irritation, or to the presence of a foreign body, this should be removed if possible. In *chronic* abscess, it is generally a safe rule to delay the use of the knife as long as possible. With rest and constitutional

treatment, absorption often takes place. Chronic abscesses, especially those affecting lymphatic glands, frequently become absorbed after repeated applications of the tincture or liniment of iodine. After an abscess has been opened, the treatment consists in the application of poultices, or water dressing, frequently changed, and when it has ceased discharging it should be dressed with mildly stimulating ointments or lotions (zinc or lead), until the healing process is completed.

II.—ALVEOLAR ABSCESS.

Definition.—A collection of pus around the apex of the fang of a tooth, between it and the membrane lining the socket.

Symptoms.—Extreme pain, with a throbbing sensation referred to some particular part of the jaw, usually corresponding to the situation of diseased teeth. Often there are rigors and great constitutional disturbance. The gum swells; the affected tooth is very tender to the touch, and imparts a sensation to the patient, when pressed upon, as if it were elevated above the level of the neighbouring teeth. In severe cases serous effusion takes place in the cancellated bone and surrounding soft tissues, giving rise to great swelling of the affected side of the face, causing closure of the eye and œdema of the eyelids. If the lower jaw is affected, the swelling often extends a considerable distance down the neck.

Causes.—Periodontal inflammation resulting from pre-existing diseased teeth, cold, or local irritation. Sometimes it arises from mechanical injury to a tooth.

Terminations.—When pus has formed, it tends to find an opening through the gum or around the neck of

the diseased tooth, forming a 'gumboil,' or the abscess may form fistulous openings on the face. If connected with the upper teeth the abscess may perforate the antrum, open into the nares, or on the face near the inner canthus or the lower border of the malar bone. If connected with the lower teeth the abscess may open externally above or below the margin of the jaw, and in some cases the matter has been known to pass down the neck, and even to find exit below the clavicle. Salter mentions a fatal case where the matter reached the armpit. If proper treatment be not adopted alveolar abscess may give rise to acute ostitis of the jaw, followed by necrosis; in some cases this complication has resulted in pyæmia and death.

Treatment.—Saline purgatives should be freely given in the early stage, and blood abstracted locally, either by scarification or the application of leeches to the gum. The pain may be relieved by fomenting the face with hot decoction of poppies, or the decoction or hot water may be held in the mouth. Poultices should *not* be applied to the outside of the face. When pus has formed it should be evacuated as early as possible, either by extracting a diseased tooth or by making a longitudinal incision through the gum over the most prominent point of the swelling. In cases when the abscess does not open on the gum, instead of extracting a tooth, rhizodontology may be performed.

III.—ANAL ABSCESS.

Definition.—A collection of pus at or near the anus.

Symptoms.—Same as in abscess of other parts of the body.

Causes.—Generally obscure. May be the result of ulceration in the lower part of the rectum, within the sphincter. Sometimes it is due to the presence of a fish-bone or other foreign body in the rectum.

Termination.—May burst, and after discharging for a time, heal up. Generally, however, the external opening does not heal, and a fistula remains. If the abscess does not burst early, or is not opened, the pus may burrow beneath the skin, and sometimes it extends to the cellular tissue of the ischio-rectal fossa, giving rise to what is called an ischio-rectal abscess. If neglected, or an early opening is not made, phlegmonous inflammation of the perineum, scrotum, etc., may occur.

Treatment.—Before pus has formed, the usual treatment for abscesses, poultices, fomentations, etc., should be persevered with. As soon as fluctuation can be detected a free incision should be made. If the abscess is deep-seated in the ischio-rectal fossa, a free incision should be made early, before fluctuation can be detected.

IV.—PERINEAL OR URINARY ABSCESS.

Definition.—A collection of pus in the cellular tissue of the perineum in front of the anus.

Causes and Symptoms.—Perineal abscess is a consequence of long standing and neglected stricture of the urethra. Rarely it occurs as an ordinary abscess quite apart from stricture. When an organic stricture has existed for a long time, the urethra behind the stricture becomes much dilated, and after a time slight ulceration or laceration takes place, and a few drops of the urine escape into the cellular tissue, giving rise to inflammation and suppuration. On examination, a hard, circumscribed, and deep-seated

swelling may be found in the perineum, which is painful on pressure. Usually there are severe constitutional symptoms ; rigors, dry brown tongue, rapid pulse, and general fever.

Treatment and Terminations.—Should be opened in the median line of the perineum at once, and the contents evacuated. If stricture exists, this should be treated at the same time either by dilatation with a catheter which may be left in the bladder, or by dividing the stricture. This may be done by passing a grooved staff down the urethra as far as the abscess, and then cutting through the stricture by means of a scalpel introduced from the perineum. A large catheter may or may not be left in the bladder. In most cases it is sufficient to pass a catheter at regular intervals, three or four times a day. If not opened, the contents of the abscess will increase, and pass backwards to the neck of the bladder and cellular tissue of the pelvis, giving rise to extensive inflammation of the parts ; or it may be that the urethra will rupture from the patient straining to empty his bladder, allowing the urine to become extravasated. Perineal abscess and extravasation of urine often leave a urinary fistula, or *fistula in perineo*.

V.—SPINAL ABSCESS.

Psoas, Iliac, Lumbar, Gluteal, etc.

Definition and Causes.—A collection of pus, arising from caries of some part of the spinal column. When disease of the vertebræ exists, the matter tends to find its way sooner or later to the surface of the body, and different names are given to the abscess according to the situation where the pus points. The most frequent situations where spinal abscesses point

are on the inner side of the upper part of the thigh—*psoas abscess*; just above Poupart's ligament—*iliac abscess*; in the loins—*lumbar abscess*; and the lower part of the gluteal region—*gluteal abscess*. When spinal abscess exists in either of these situations, it is generally connected with the lower dorsal or the lumbar vertebræ. Abscesses arising from disease of the cervical vertebræ usually point in the neck or in the pharynx. [NOTE.—Abscess *may* occur in any of the above situations from other causes than spinal disease.]

Symptoms.—Those of chronic abscess. *Vide* Aid I.

Treatment.—In the early stage the general health must be attended to, and strict rest enjoined. It is prudent to delay opening such abscesses, as the pus often becomes absorbed. If the abscess attains a large size, or the skin becomes red and threatens to break, the contents may be evacuated by means of the aspirator, or by a valvular incision. Some surgeons advise a free incision; in this case the antiseptic method of after-treatment as recommended by Professor Lister should be adopted.

VI.—THECAL ABSCESS.

Paronychia, Whitlow.

Definition and Causes.—A collection of pus within the sheath of a tendon, most common in the fingers and toes, and arising from inflammation within the sheaths. The primary cause of the inflammation is generally a punctured or poisoned wound; but occasionally the cause cannot be discovered. When the thecal inflammation affects the finger or fingers only, the affection is termed *paronychia* or *whitlow*. There is a milder and very common form of whitlow which affects only the skin and subcutaneous tissue.

Symptoms.—Heat, redness and swelling of the

part with extreme pain and throbbing, and great constitutional disturbance. When the disease commences in the finger, it spreads rapidly up the hand and arm, and if prompt surgical treatment is not adopted, the hand and arm must sometimes be sacrificed in order to save the life of the patient.

Treatment.—The swollen and inflamed part must be opened early, even before suppuration has taken place, by means of a free and deep incision. Such an incision is extremely painful, and the use of an anæsthetic is justifiable in such cases. Hot fomentations and linseed poultices to be used afterwards. The free incision gives speedy relief, as it relieves the tension on the sheaths and the deep fascia. Constitutional treatment must also be attended to, and opiates given, if necessary, to procure sleep.

VII.—BOIL OR FURUNCLE.

Definition.—A local and circumscribed inflammation of the skin and subcutaneous tissue, accompanied by an effusion of lymph in the areolar tissue of the part and ending in suppuration and sloughing of a small extent of tissue. Bryant describes two kinds of boil; one ‘a subcutaneous swelling, attended with little pain until the skin over it inflames and suppurates; the conical-pointed swelling, with inflamed indurated areola, causing severe distress until the parts give way, when the feeling of tension and throbbing is followed by relief, due to the termination of the sloughing process and discharge of the “core.” When the slough has been discharged, an irregular orifice in the skin is seen covering in a cavity in the cellular tissue, which subsequently granulates leaving a depressed cicatrix.’ The second form begins as ‘an inflamed follicle or pimple, with a scarlet exquisitely sensitive areola. It suppurates slowly, occasionally becomes

vesicular, and, as a rule, terminates with a less well-marked slough than the former kind.'

Causes.—Frequently it is difficult to assign a cause for an outbreak of boils, but they sometimes depend upon a morbid condition of the blood from improper or insufficient food, excessive drinking, etc. Some persons appear to be predisposed to boils, and in such, slight local irritation is sufficient to produce them.

Symptoms.—Usual accompaniment of local inflammation, pain of a severe smarting character, heat, redness and swelling. At first the swelling is hard, but in a little time the central point becomes soft, bursts, and discharges as above described.

Treatment.—Locally the treatment should be directed to promoting suppuration of the boil by fomentations and poultices, and when it has burst or been lanced, stimulating ointments or lotions are to be applied to promote healthy granulations. At the same time, constitutional treatment is necessary. At first, aperients should generally be given followed by quinine, iron, or other tonics, with, perhaps, cod liver oil; nutritious diet to be taken, and plenty of out-door exercise, when the state of the patient permits. Sometimes entire change of air is necessary.

VIII.—CARBUNCLE OR ANTHRAX.

Definition.—A local inflammation of the skin and cellular tissue, generally of the back, nape of neck or buttocks, similar to that associated with boils, but much more severe and extensive, and usually occurring in elderly and feeble persons. Often it is associated with diabetes and the gouty diathesis.

Causes.—Usually constitutional, as gout, diabetes, Bright's disease; or may be induced by high living.

Symptoms.—Same as those of boil, but the pain is more severe and the constitutional depression

greater, and instead of breaking at one point, the carbuncle generally opens at many points, discharging a little thin fluid. After a time, generally some weeks, the whole of the affected skin and cellular tissue sloughs and separates, leaving a deep, irregular cavity undermining the neighbouring tissues.

Treatment.—Locally, deep crucial incisions followed by continuous poulticing, have been most commonly recommended, but some surgeons object to the use of the knife, and recommend the free application of caustic potash. The object aimed at is the same, viz. : the early separation of the slough. When the slough has been cast off, stimulating lotions or ointments are necessary to promote healthy granulations. Constitutional treatment must also be attended to; tonics, liberal diet, good air, cleanliness, aperients when necessary, and opium when the pain prevents sleep.

IX.—ANEURISM.

Definition.—A swelling or tumour, caused by the preternatural dilatation, or rupture of the coats of an artery, and communicating with the arterial canal.

Varieties.—When the sacculated dilatation involves all the coats of the artery, it is said to be *true*, and when the two inner coats have given way, and only the external one remains, it is said to be *false*. The distinction is not often made out in practice. Different names have been given to aneurisms, according to the forms they assume, as follows :—

(a) *Fusiform.*—When the whole calibre of the artery is involved in the dilatation.

(b) *Sacculated.*—When the dilatation involves a portion only of the calibre of the vessel.

(c) *Diffused or Consecutive.*—When all the coats of the artery having ruptured, the sac is formed 'by the muscles and condensed tissue of the part into which the extravasated blood has been effused' (Bryant).

(*d*) *Dissecting*.—When the inner or inner and middle coats have given way, the blood finds its way between the coats of the artery.

Causes.—Atheroma of arterial walls, induced by abuse of alcohol, syphilis, age, etc., laborious occupations necessitating prolonged strain on the circulatory system, as in soldiers, sailors, etc., strains, etc.

Symptoms.—A tumour occurring in the course of an artery, soft, and generally *pulsating*; a thrill can often be detected, and on auscultation, a *bruit* can be heard. When the artery is compressed on the distal side, the tumour becomes tense. When firm pressure is made on the cardiac side, the tumour no longer pulsates, and the bruit ceases. On removal of the pressure, the tumour expands again immediately. In aneurism of the carotids, the circulation in the brain is interfered with, and there is giddiness. Often, the laryngeal nerves are pressed upon, and the voice becomes hoarse. In nearly all aneurisms, the patient complains of pain and local throbbing. When an aneurism has become partially consolidated, pulsation cannot be detected, diagnosis is then very difficult.

Terminations.—An aneurism may be cured spontaneously by distal occlusion. A clot of fibrin may be dislodged from the sac, and become arrested in the artery, on the distal side of the tumour. At first the clot may not entirely close the vessel, but fresh fibrin soon becomes deposited on the clot, and complete obstruction takes place. Spontaneous cure sometimes takes place from coagulation and consolidation of the contents of the sac, or from compression of the artery by the aneurism itself. Usually, the aneurism continues to increase in size, and causes absorption of all the tissues subject to its pressure. In this manner the sternum and bodies of the vertebræ often become absorbed. After a time the aneurism bursts, and

fatal hæmorrhage takes place. Sometimes the sac becomes inflamed, suppurates, and sloughs, and in other instances, a fatal result takes place from pressure on the trachea or œsophagus.

Treatment.—The first principle of treatment is to endeavour to induce coagulation in the sac, and to promote this, absolute rest in the recumbent position is essential. Diet should be restricted, according to Tufnell, to about eight ounces of solid and eight ounces of fluid food in twenty-four hours. Bleeding has been recommended to reduce the force of the circulation. All sources of excitement must be avoided. In all aneurisms that can be treated locally, surgical interference is necessary. The object of treatment is to diminish or arrest the circulation in the sac. This may be accomplished by compressing the artery above the tumour (*indirect pressure*), either by digital pressure or with the tourniquet, by compression of the aneurism itself (*direct pressure*), by the application of a ligature on the cardiac side of the aneurism (the Hunterian method); by compression or ligature of the artery. Galvano-puncture, injection of coagulating fluids, introduction of foreign bodies into the sac, and other methods of treatment, have been tried with indifferent success. Iodide of potassium in 5-grain doses three times a day, tincture of aconite, digitalis, and other medicines, have been recommended internally, but they are of doubtful benefit. In popliteal aneurism, flexion of the knee-joint arrests the circulation in the sac, and is a favourite mode of treatment, whilst compression by Esmarch's bandage has in some cases effected a cure.

X.—TRAUMATIC ANEURISM.

Definition.—A pulsating tumour communicating with an arterial canal, not arising spontaneously, but

following a punctured wound or rupture of the coats of the artery.

Causes.—Traumatic aneurisms generally arise in the following manner: An artery having been wounded, pressure is applied to arrest hæmorrhage, and the wound ultimately heals. After a time, pressure being no longer kept up, the lymph which closed in the wound gives way, forming a sac which becomes distended with blood. Or a traumatic aneurism may be caused by unusual and sudden muscular exertion, such as straining the legs in lifting heavy weights or in wrestling. One or more coats of the artery may rupture in this manner, and an aneurism ensue.

Symptoms.—When a traumatic aneurism is encysted, its symptoms do not differ from those of spontaneous aneurism. If diffused, *i.e.*, the blood not contained in a sac, the case differs in no essential particular from ruptured artery. In the diffused variety pulsation is generally absent, and diagnosis is difficult. There is, however, a good deal of swelling, and, as a rule, the history of the case will assist the surgeon in forming a diagnosis.

Terminations and Treatment.—When encysted, same as in spontaneous aneurism. When diffused, the limb may be so distended with extravasated blood as to render it impossible to tell the situation of the injured vessel. In such a case the usual plan of cutting down and ligaturing the artery cannot be adopted. The limb is to be elevated, and cold applied; and it may be that nature will effect a cure; but should there be evidence that the circulation in the limb is arrested, the surgeon is justified in cutting down on the artery at the point where the history of the case indicates that it is wounded. When the main artery is ruptured, gangrene of the limb often

follows, and amputation becomes necessary. Bryant lays down the following rules:—(1) That every aneurism, however caused, if encysted, is to be treated upon like principles, and that ruptured traumatic aneurisms are to be regarded as ruptured arteries. (2) That the rupture of an artery, when bound down by dense fascia, such as the popliteal, is generally followed by complete arrest of all circulation in the limb, both arterial and venous, and, as a rule, requires to be treated by amputation, gangrene being otherwise the result. (3) That in cases of partial rupture there may be less extravasation, and, consequently, less severe measures may suffice; such as pressure upon the main trunk above, or if this fail, the application of a ligature. (4) That a ruptured artery in parts less fascia bound than the leg, as the arm, &c., may be treated more as in the case of arterial injuries, by the application of a ligature to the wounded vessel.

XI.—ARTERIO-VENOUS ANEURISM.

(*Aneurismal Varix—Varicose Aneurism*).

Definition.—A dilated condition of a vein occurring at a point where a communication exists with a closely adjacent artery.

Varieties. — There are two varieties of arterio-venous aneurism. (1) The *aneurismal varix*, where the blood passes directly from the artery into the vein without an intervening sac, and (2) the *varicose aneurism*, where a sac exists between the two vessels through which the blood flows in its passage from the artery to the vein.

Causes.—May, it is said, arise spontaneously, but seldom occurs except as a consequence of an artery being wounded through a vein in the operation of

venesection. Phlebotomy being now seldom performed, this lesion is rarely seen.

Symptoms.—The vein is enlarged and dilated, pulsates or communicates a peculiar thrill to the touch, and at the point of junction of the arterial and venous streams a bruit can be heard on auscultation. In *aneurismal varix* the vein assumes in many respects the characters of an artery, becoming thickened, irregularly dilated and tortuous, and pulsation is very marked.

Treatment.—As neither form of arterio-venous aneurism gives rise to much pain, inconvenience, or danger, except in rare instances, surgical treatment is seldom necessary. If the disease is extensive or rupture of the vein is apprehended, pressure may be made on the *artery* with a view to induce occlusion. If compression fails, the *artery* may be cut down upon and ligatured. Nothing need be done to the affected vein as long as arterial communication is cut off.

XII.—ANEURISM BY ANASTOMOSIS.— CIRSOID ANEURISM.

Definition.—A vascular pulsating tumour consisting of numerous dilated and elongated arteries.

Varieties.—This disease may involve either the smaller arteries and capillaries or the trunks of the large vessels. In the former case it is called aneurism by anastomosis, and in the latter the term cirsoid aneurism is applied.

Symptoms.—The tumour is soft and pulsating, and can be emptied of its blood by pressure. The diseased vessels are dilated into pouches, tortuous and convoluted. Its most common situation is the scalp.

Treatment.—Aneurism by anastomosis is amenable to treatment by styptic injections, the application of the galvano-cautery or ligature of the vessels con-

verging towards the growth. The injection of styptics is, however, not unattended with danger, as embolism may ensue. Sometimes good results follow direct pressure, but removal by excision is the most certain method of cure. In cirroid aneurism the best treatment is removal by means of subcutaneous ligature of the diseased growth. In many cases no treatment is called for.

XIII.—ANKYLOSIS.

Definition.—An affection of a joint characterised by partial or entire loss of motion.

Varieties and Causes.—There are two kinds of ankylosis, *ligamentous* or *fibrous*, and *osseous*. The former is a result of inflammation in the joint affecting the cartilages and synovial membrane only, and the latter results when the inflammation has proceeded to suppuration, and disease has attacked the ends of the bones entering into the formation of the joint, which ultimately grow together, forming a complete stiff joint. Stiffening of a joint sometimes results from fibrous adhesions in the soft parts outside the joint. This is called *extra-articular* ankylosis.

Treatment.—As ankylosis is the natural result of a disease, and the best that can be hoped for in many cases, no treatment is necessary unless the limb is fixed in a bad position so as to be of little or no use to the patient. In fibrous ankylosis forcible flexion under chloroform, and passive movement afterwards, may restore the joint in some measure; but in the osseous variety forcible flexion is useless. Formerly, nothing was done in such cases unless the case was so bad as to render amputation of the limb advisable; but of late years excellent results have been obtained, especially in ankylosis of the hip-joint, by subcutaneous section of the bone, either with a fine saw or a

chisel. In hip-joint ankylosis, if the femur is divided through the neck, the limb can be at once fixed in a useful position, and in good subjects recovery is almost certain, although some deaths have been recorded after this operation.

XIV.—ARTHRITIS.

Definition.—Inflammation of the structures which enter into the composition of a joint.

Varieties.—There are two kinds of arthritis, *acute* and *chronic*. The term is often used in connection with another and quite distinct form of disease, viz :—*Osteo-arthritis*, to be considered hereafter. When the inflammation is confined to the synovial sac of the joint, the affection is termed *synovitis*.

Causes.—The cause is, in a large number of cases, very obscure. At times the disease can be traced to local injury ; it may be a blow, sprain, twist, or wound ; but in a large number of cases the disease comes on insidiously and without any apparent cause. In these latter cases the patients are generally badly fed, and of unhealthy constitutions. Often the disease is decidedly of tubercular or scrofulous origin, or associated with rheumatism or gout.

Symptoms.—These differ according to the form of disease. In the *acute* variety there is much pain in the joint, which is aggravated on the slightest movement ; the part is hot and speedily becomes swollen, from effusion into the joint, as indicated by fluctuation, and occasionally there is redness of the skin. There is always great constitutional disturbance, high fever, thirst, loss of appetite, sleeplessness ; or if the patient sleeps, he often starts up suddenly from shooting pains in the joints. In the *chronic* form, pain is the

first symptom ; but it is far less acute, being described as of a dull, aching character, and often mistaken for 'growing pains' or rheumatism. The pain is increased on firm pressure. Swelling is a late symptom, and does not take place as a rule until some weeks, or, it may be, months, after the pain is first observed. There is also an absence of fluctuation in the early stage of the disease.

Pathology.—Few questions have given rise to so much dispute among surgeons as the inflammatory diseases of joints, and the literature of the subject is so vast that it is impossible to enter fully into its discussion here ; the student is therefore recommended to consult text-books for the views of the various surgical authorities. This much is admitted, that whether the disease is acute or chronic, it generally commences either in the synovial membrane or in the bone, and subsequently affects the cartilages and ligaments. If it commences in the synovial membrane, the morbid process may show itself either by change of function or change of structure. In the former case the pathological condition is excessive secretion, as indicated by swelling and fluctuation. Under early and proper treatment the secretion may be absorbed without permanent injury to the joint, but in other and more active cases, the synovial membrane becomes thickened and velvety in appearance ; ulceration or sloughing follows, with suppuration in the joint. The articular cartilages also ulcerate, and the bone beneath becomes affected in a similar manner. When change of structure is the chief manifestation, the disease is generally of a sub-acute or chronic character. In these cases the synovial membrane becomes thickened by infiltration of inflammatory product in its walls or upon its surface, ultimately becoming gelatiniform or pulpy. As in the acute form, the cartilages become affected second-

arily ; the affection, in these instances, generally assuming the form of granular degeneration, and involving their entire surfaces. In the early stage of the disease, the granular appearance may not be visible to the naked eye, but in its advanced stage the cartilage presents a worm-eaten appearance, and often it becomes detached from the bone. When the inflammation commences in the articular extremity it becomes enlarged in consequence of the cells of the cancellated structure being expanded with inflammatory deposit. In some cases the inflammation subsides, the deposit becomes organised, and cure results without any actual disease of the joint manifesting itself ; but in other cases the inflammation proceeds to suppuration ; an abscess forms in the epiphysis, which generally bursts into the joint, the cartilages and synovial membrane become affected, and disorganisation of the joint ensues.

Treatment.—The first indication of treatment in all cases of joint disease, whether acute or chronic, is perfect rest, which may be secured by fixing the affected limb on a splint. In the acute form, the application of leeches and hot fomentations generally gives marked relief. Opium or other sedatives should be given internally, and some surgeons advocate the administration of calomel. In the chronic form, blisters, strapping, the application of starch bandages, Scott's ointment, and iodine paint have each been advocated, and may each be tried in succession. Constitutional treatment should not be neglected ; iron, quinine and cod-liver oil are the most serviceable remedies. In case of suppuration the joint should be laid open, and the wound treated antiseptically. When the disease has proceeded thus far, recovery with ankylosis which will be fibrous or bony according as to whether the suppuration is the consequence

of synovial disease, or of articular osteitis, is the best result that can be hoped for (*vide* XIII.). In many cases it becomes a question whether the joint shall be excised or the limb amputated, but at times it may suffice to remove the diseased portion of the ends of the bones. The special treatment of arthritis affecting particular joints cannot be discussed here.

XV.—BALANITIS.

Definition.—An inflammatory affection of the surface of the glans penis, and inner surface of the prepuce, accompanied by profuse discharge of purulent matter.

Causes.—Generally, this affection is a consequence of gonorrhœa, but it may arise, in the case of those in whom the prepuce is abnormally long from neglecting to keep the parts clean, or from contact with unhealthy secretions in the female.

Symptoms.—As in other local inflammatory affections, the chief symptoms are pain, heat, redness, and swelling. There is also a profuse purulent or muco-purulent discharge, and frequently the surface of the glans and the mucous surface of the prepuce are excoriated. If neglected or improperly treated, the prepuce becomes œdematous, and the condition known as phimosis occurs.

Treatment.—The parts to be kept enveloped in lint, saturated with astringent lotion, such as the acetate of lead lotion, or sulphate of zinc and alum. Or they may be painted with solution of nitrate of silver, five grains to the ounce. They are also to be kept very clean by frequent bathing with warm water, and the injection of warm water, or weak zinc or lead lotion, under the foreskin. The administration of saline aperients, or alkalies, generally expedites the

cure. Phimosiſ requires operative treatment, either ſlitting up of the prepuce, or circumciſion. The latter operation uſually gives better reſults than the former.

XVI.—BRONCHOCELE, OR GOÎTRE.

Definition.—Simple enlargement, or hypertrophy of the thyroid gland. The term goître is often applied to cytic and other diſeaſes of the gland, but ſtrictly it ſhould be applied only to that form of diſeaſe which is known in this country as Derbyſhire neck.

Causes.—This diſeaſe is believed to ariſe from drinking water impregnated with lime or magnesia, as it is ſeldom met with except in diſtricts where the water is freely charged with one or other of theſe ſalts, chiefly the former. It is ſaid alſo to ariſe from uterine derangement, but this is not at all clear. The diſeaſe is, however, moſt common in females who are about the age of puberty.

Characters and Symptoms.—Beyond the ſwelling, this diſeaſe rarely gives riſe to any particular ſymptoms unleſs the tumour becomes of great ſize. There is then difficult and harſh reſpiration, cough, feeling of fulneſs in the head, in conſequence of preſſure on the trachea and large veſſels, and ſometimes difficulty in ſwallowing. The ſwelling generally affects both lateral lobes, but ſometimes only one is affected, and occaſionally the enlargement is wholly confined to the iſthmus. The tumour is ſoft, elastic, and there is an abſence of fluctuation. If there is fluctuation, the diſeaſe is probably cytic. In ſwallowing, the tumour is ſeen to riſe and fall with the trachea.

Treatment.—In young people the diſeaſe is generally curable by attending to the general health, and abſtaining from water contaminated by inorganic

impurities. The best medicines are iodides of iron and potassium, quinine and cod-liver oil. External applications of iodine are useful, and the patient should take plenty of out-door exercise. Injecting the tumour with iodine has been tried with success. In some cases the pressure on the larynx is so great that life is endangered, it is then necessary to extirpate the gland if it is found that the particular case admits of this being done with reasonable hope of success. The operation has been successfully performed by many surgeons, but it is attended with great danger on account of the proximity of the great vessels of the neck.

XVII.—BUBO, OR ADENOPATHY.

Definition.—An enlarged and inflamed condition of the lymphatic glands in the groin, whether situated above or below Poupart's ligament.

Causes and Varieties.—The affection to which the term bubo is applied, is a result of some form of venereal disease, and is due to absorption of pus. There are three varieties of bubo. The 'sympathetic bubo,' which arises from gonorrhœa; the 'suppurating bubo,' a result of soft chancre, and the 'indolent bubo,' which usually arises from hard chancre.

Symptoms.—Heat and swelling of affected glands with severe pain, which is aggravated on pressure or on attempting to walk. The pain is much less acute in the indolent variety.

Results.—If the bubo arises from a simple suppurating syphilitic sore, the gland almost invariably suppurates, and does not heal up until after free discharge. In 'sympathetic' bubo, if treatment be adopted early, the inflammation may subside without

proceeding to suppuration. Indolent bubo rarely suppurates unless the patient is in a very low and feeble state, or sympathetic action is excited by local irritation or over exercise. After suppuration, the edges of the sore sometimes ulcerate and enlarge considerably. Rarely the sore puts on phagedænic action and spreads to an alarming extent.

Treatment.—In all cases of bubo, rest is essential. In ‘sympathetic’ bubo, fomentations, or the application of leeches, usually give great relief. Sometimes the local application of ice, lead, or evaporating lotions, or of iodine, or the inunction of mercurial ointment, relieves pain, and prevents suppuration. In ‘indolent’ bubo pressure by means of a pad and spica bandage promotes absorption. In the case of ‘suppurating’ bubo, hot poultices and fomentations must be applied, and as soon as fluctuation can be detected, the pus should be allowed to discharge through a free incision. After sloughing, if indurated glands are exposed, these may be removed by the scalpel. Sinuses should always be laid open, and stimulating ointments, mercurial powders (calomel or red oxide), or iodoform applied to promote the healing process. In case of phagedæna, nitric acid, or other caustics must be applied locally. Constitutional treatment should be attended to, tonics and generous diet being indicated.

XVIII.—BURNS AND SCALDS.

Definition.—A *burn* is an injury to the body, arising from the application of extreme heat, either by means of a solid body or actual fire. A *scald* is a similar injury, arising from the application of heated liquids or vapours.

Varieties.—Six *degrees* of injury, arising from the application of heat to the body, are recognised by surgeons,

- 1st. When the skin is merely scorched, causing redness and tenderness only.
- 2nd. When the heat has been so intense as to raise a blister, with effusion of serum beneath the cuticle.
- 3rd. When the superficial layer of the true skin has been destroyed. The vesicles, in this case, contain a blood-stained or brown fluid.
- 4th. When the whole thickness of the skin has been destroyed, together with some portion of the subcutaneous cellular tissue, forming a hard, dry, and insensible eschar. The superficial tissues having been destroyed, there are no vesicles in this instance, except, perhaps, on the skin surrounding the eschar.
- 5th. When in addition to skin and cellular tissue, the deep structures, muscles, fasciæ, vessels, etc., are destroyed, forming a black, charred mass.
- 6th. When the whole thickness of a limb, including the bone, is implicated.

Results.—Burns and scalds, if severe, are very dangerous to life, especially in the case of children or old persons. The danger of a fatal result is to be estimated by the extent of surface involved, rather than by the degree of the injury. A severe burn of limited extent is far less dangerous than an extensive burn or scald of the first degree. If half the body is implicated a fatal result is almost certain. Death may result from shock or collapse within forty-eight hours, or from intensity of inflammation in the stage of reaction from the third to the fourteenth day, the inflammation generally attacking some internal organ. Or the patient may die of exhaustion or pyæmia during the suppurative stage. Erysipelas, pyæmia, tetanus, inflammation of the lungs, peritonitis, ulceration of

the duodenum and cerebral congestion are among the complications arising from severe and extensive burns or scalds. If the patient escapes or survives these complications, the injured surface heals by granulation and cicatrisation. When the whole thickness of the skin is destroyed, the cicatricial tissue gradually contracts, giving rise in many cases to great deformity. This is especially liable to take place after burns about the face and neck and flexions of the limbs.

Treatment.—In slight cases the application of water dressing, lead-lotion, flour, collodion, or chalk-and-water give speedy relief. The latter is an excellent remedy. When the skin has been blistered, the blisters should be punctured, and the fluid allowed to escape. The injured part should be carefully excluded from the air by the application of lint and carron-oil or zinc ointment. Or the part may be dusted over with flour. Later carbolic oil (1 in 20), as recommended by Lister, is a good stimulating application to promote separation of the sloughs. Calamine, resin, and creosote ointments are also recommended. Sloughs should be cut away as they separate. In severe burns great attention must be paid to the case during the healing stage in order to prevent contraction of the parts. This may be prevented by keeping up extension during the whole period of granulation and cicatrisation. Extensive skin-grafting has been recommended and practised with this object, and with excellent results. In burns of the fifth and sixth stages amputation of a limb may be necessary. Great attention must be paid to constitutional treatment, the relief of pain, and a nutritious diet exhibited. Complications must be treated on general principles as they arise.

XIX.—BURSITIS.

Definition.—Inflammation, either acute or chronic, of a bursa mucosa.

Causes.—The most common cause of bursitis is pressure; occasionally it arises from a blow or local irritation. Sometimes no cause can be made out.

Symptoms.—Pain, which is increased on pressure, is usually the first symptom. Crepitation on pressure is also an early sign. After a little time effusion takes place, causing a circumscribed fluctuating swelling. The amount of effusion depends on the severity of the inflammation.

Diagnosis.—This affection is seldom difficult to diagnose, if the history of the case is made out, and the situation of bursæ liable to inflammation is remembered. The most commonly affected bursæ are those of the patellæ (housemaid's knee), generally due to pressure from much kneeling. Other bursæ liable to inflammation are those over the olecranon process (from leaning on the elbow), the acromion process (from carrying heavy weights on the shoulder), and the ball of the great toe (from wearing tight boots), in the latter case forming 'bunion.' When the deep bursæ are affected, diagnosis is more difficult. The deep bursæ liable to inflammation are: the bursa beneath the deltoid muscle (simulating shoulder-joint disease); the large bursa beneath the extensor muscles of the thigh (simulating disease of knee-joint); the bursa beneath the ligamentum patellæ (also simulating disease of knee-joint); that between the tendon of the gluteus maximus and trochanter major; that beneath the tendon of the psoas muscle and those beneath the tendons of the hamstring muscles.

Treatment.—In the early stage of effusion and in

cases not of long standing, rest, removal of pressure, and the application of blisters, often cause absorption and affect a cure. Painting with iodine is sometimes useful. If these fail, tapping and subsequent pressure may be tried, or the cyst may be injected with iodine, or a seton passed through it and kept in until suppuration is established. When the bursa contains effused blood, or pus, a free incision should be made. In chronic cases when the bursa becomes as it were a cyst, with solid or almost solid contents, excision is the only cure.

XX.—CANCERUM ORIS, OR GANGRENOUS STOMATITIS.

Definition.—Phagedænic ulceration or sloughing of the cheek or lip.

Causes.—Sometimes occurs as a result of one of the eruptive fevers, or of salivation, but often no exciting cause can be made out. In most cases ill-feeding and neglect are doubtless the chief factors in its origin.

Symptoms, etc.—This disease commences as a phlegmonous inflammation of the cellular tissues of the cheek or lip. The part affected becomes hard and swollen, and very soon sloughs. The sloughing spreads very rapidly, and in many cases destroys a large portion of the cheek, the lips, and gums, and, in extreme cases, destroying a portion of the jawbone. There is profuse salivation, and discharge of fœtid, sanious fluid.

Prognosis.—A very fatal disease, the patient usually dying from exhaustion, or from hæmorrhage, through sloughing of an artery.

Treatment.—Tonics and liberal diet, eggs, beef-tea, milk, wine, etc. The affected parts to be kept

very clean, and washed with Condyl's fluid or other disinfectant. In the early stage fomentations are useful, but when sloughing is going on the actual cauter, or strong nitric acid, should be freely applied, the patient being placed under chloroform.

XXI.—APHTHOUS OR ULCERATIVE STOMATITIS.

Definition.—A disease of the mouth usually met with in children, and characterised by aphthous ulceration of the tongue, gums, lips, and cheeks.

Causes.—Generally obscure, but in most cases it is probably due to bad feeding and neglect. Sometimes it arises from irritating substances being kept in the mouth, sucking poisonous wall-paper, etc.

Diagnosis.—This disease resembles, and is often mistaken for, cancrum oris. It is, however, much less virulent, and more amenable to treatment. It begins as an ulceration of the mucous membrane, whilst in cancrum oris the disease begins in the cellular tissue, and the mucous membrane, or skin, does not slough until afterwards.

Treatment.—Aperients to be given at first, and afterwards chlorate of potash and tonics, with milk and beef-tea diet. The mouth to be frequently washed or brushed out with lotion of chlorate of potash, one or two drachms to a pint. If the ulceration assumes a phagedænic form, a liberal allowance of wine should be given, and caustics may be applied as in cancrum oris.

XXII.—COMPRESSION OF THE BRAIN.

Definition.—The term used by surgeons to indicate that condition which results from the pressure of some substance upon the brain.

Causes.—Compression of the brain may arise from various causes, but the chief are :

- (a) *Depressed Bone*, resulting from simple or compound fracture of the skull.
- (b) *Extravasation of blood* within the cranium, arising from rupture of some one or more of the inter-cranial vessels.
- (c) *Inflammatory effusion*, either into the brain or between its membranes.
- (d) *Formation of pus* between the skull and the dura mater.

Symptoms.—These may come on at once, or be very gradual in their onset. If due to depression of bone, symptoms of compression occur almost immediately, if to extravasation of blood, a short space of time intervenes between the accident and onset of symptoms; if to inflammatory effusion, the symptoms may not be evident for some days, and then develop gradually; and if due to formation of pus, the symptoms may not come on for some weeks after the accident. The chief symptoms are, insensibility, generally complete, and in some cases amounting to profound stupor or coma; slow, difficult, and in bad cases stertorous, breathing, each respiration being accompanied by a puffing movement of the muscles of the face; pulse slow and full; retina insensible to light, the pupils immobile, and generally dilated, sometimes unequally so; paralysis, either partial or general; loss of power of deglutition; inability to retain feces, and loss of power of micturition, giving rise to retention of urine.

Terminations.—Compression of the brain, although a very grave event, is not necessarily fatal, even when associated with fracture and depression of the vault of the cranium. The prognosis depends greatly on the amount of injury to the brain substance. If severe

and general, a fatal termination is the rule; death taking place by coma. A patient may recover from the primary effects of compression due to a blow or a fall on the head, and die afterwards from secondary inflammation and softening of the brain. In compression from extravasation of blood into the arachnoid, the clot may become organised, forming an 'arachnoid cyst,' recovery following. In compression from depressed bone, the brain may itself raise the depressed bone gradually, or it may accommodate itself to the pressure, and recovery follow. If trephining has been successful in relieving the symptoms of compression, a permanent cure may result. Patients recover very slowly in even the most favourable cases.

Treatment.—In a large number of cases the injury to the head is so severe and general, that surgical interference is out of the question; but when it is known, or the symptoms indicate, that the injury is a *local* one, surgical treatment may be called for. In all cases the head may be shaved and ice-bag applied; the patient kept at rest in the horizontal position, and as quiet as possible. The diet to be light and nourishing, without stimulants. Free purgation is necessary, and to effect this, calomel in large doses is generally given. If the injury is local, trephining may be necessary, and is called for in cases of depressed fracture (simple or compound), with severe or persistent symptoms of compression; also in cases where it can be made out that the symptoms are due to extravasation of blood, or the presence of pus between the cranium and the dura mater. In compression with compound comminuted fracture, the pieces must be elevated or removed. Retention of urine to be relieved by means of the catheter.

XXIII.—CONCUSSION OF THE BRAIN.

Definition.—The term used to indicate that condition of disturbance of the cerebral functions which results from a severe blow on the head or sudden shock to the brain.

Symptoms.—Immediately on receiving a blow sufficiently violent to cause concussion of the brain, the person becomes insensible and loses all muscular power; if standing, he falls to the ground senseless and motionless; in common parlance, he is ‘stunned.’ The surface of the body becomes cold and pale, features contracted, pulse small, slow and intermittent, pupils generally contracted, or one may be dilated and the other contracted, respiration at first slow and laboured, afterwards irregular and sighing.

Diagnosis.—The diagnosis between concussion and compression is easy enough in well-marked cases, but often the symptoms are so obscure and complicated that it is almost impossible at first to determine the exact nature of the case. Not unfrequently the case is clearly one of concussion at first, but, as soon as reaction sets in, symptoms of compression develop themselves, in consequence of cerebral hæmorrhage. The following are the chief points which enable one to diagnose the nature of the case :

CONCUSSION.

1. Insensibility always takes place immediately on receipt of injury.

2. Breathing difficult, intermittent, sometimes sighing, but never stertorous.

3. Pulse sometimes quick, small and thready, and intermittent.

4. Pupils generally contracted.

COMPRESSION.

Insensibility, although sometimes present from the first, generally comes on gradually.

Breathing slow and laborious, sometimes stertorous and accompanied with “puffing” movement of cheeks and lips.

Pulse slow, full and bounding, easily compressible.

Pupils generally dilated.

CONCUSSION.

5. Skin sensitive to prick of pin, or to pinching.

6. Surface of body cold and pale.

7. Patient can be roused so as to answer questions.

8. Vomiting and retching are very common symptoms.

COMPRESSION.

Sensation of skin lost.

Surface of body warm, and moist, and of natural colour.

Patient cannot be roused.

Vomiting and retching absent.

Terminations.—In slight cases the patient soon recovers consciousness and the use of his limbs, and it may be within a few minutes will appear as if nothing had happened. In other cases the return to consciousness is slow, and occurs only after a well-marked stage of reaction; the skin becomes warm and assumes its natural appearance, the features are no longer contracted, the pulse becomes more regular, forcible, and rapid; often vomiting, which is a most favourable sign, comes on; muscular power returns, and the patient speedily gets well, although for some days he may feel dull and heavy, and quite unfit for bodily or mental exertion. In severe cases there is some contusion (bruising) of the brain, and occasionally the brain substance is lacerated, together with more or less extravasation of blood. Recovery may follow contusion of the brain with slight effusion; but if the hæmorrhage is extensive, symptoms of compression come on, and the case generally terminates fatally. Cases have been recorded where a person has died instantaneously from concussion (through arrest of the heart's action), but most of the fatal cases result from the secondary effects, such as inflammation of the brain or its membranes, extravasation of blood, and suppuration. Insanity and paralysis have, it is said, followed apparently slight concussion of the brain several weeks, and even months, after the primary effects have passed away.

Treatment.—Patient to be kept in bed until convalescent; surface of body to be rubbed, and stimulants should be avoided. When reaction has set in, the patient must be closely watched and kept very quiet lest inflammation follow. Diet to be very plain, and mercurial or saline purgatives given, until the bowels have acted freely. In strong plethoric people some blood may be taken with advantage. Complications must be treated as they arise, on general principles.

XXIV.—CLUB-FOOT (*Kyllosis* or *Talipes*).

Definition.—A distorted condition of the foot, either congenital or acquired.

Varieties.—There are four principal varieties of club-foot, viz. :—

- (a) *Talipes calcaneus*, in which the front part and sole of the foot are drawn upwards, and the patient can place only the back part of the heel on the ground.
- (b) *Talipes equinus*, in which the heel is raised, and the patient can place only the ball of the foot on the ground.
- (c) *Talipes valgus*, in which the foot is turned out, and the patient walks on the inner side.
- (d) *Talipes varus*, in which the foot is drawn inwards, and the inner edge of the foot drawn upwards, so that the patient walks on the outer side.

There are also combinations of the above forms, as *talipes equino-valgus* (heel drawn upwards and foot turned outwards); *talipes equino-varus* (heel drawn upwards and foot turned inwards); *talipes calcaneo-valgus* (heel depressed and foot turned outwards); and *talipes calcaneo-varus* (heel depressed and foot

turned inwards). Talipes varus is the most common congenital form.

Causes.—Whether congenital or acquired, club-foot arises from tonic or spasmodic contraction of some muscle or muscles acting on the foot, or from paralysis of some muscle or group of muscles, in consequence of which the opposing muscle (or muscles) loses antagonism, and acts uncontrolled.

Treatment.—The indications for treatment are to overcome the shortening of the muscles and tendons on the contracted side of the distorted foot, and to give strength to those on the opposite side. In mild cases, and in very young infants, friction, properly directed manual extension, daily practised, may suffice for a cure; but in severer forms, extension by strapping or the application of a splint is necessary, whilst in the most severe forms division of the shortened tendon or tendons by the operation of tenotomy must be performed previous to the application of extension by means of some mechanical appliance. Various kinds of apparatus have been devised by ingenious orthopædic practitioners for the cure of club-foot, all based on the same principle, and designed to fulfil the same objects, viz., to cause extension of the contracted structures, and to afford support to those which are relaxed or elongated. When tenotomy is necessary the following tendons are generally selected in the various forms of distortion:—For talipes calcaneus, those of the tibialis anticus, extensor longus digitorum, and sometimes the peroneus tertius; for talipes equinus, the tendo-Achillis; for talipes valgus, the tendons of the long and short peronei muscles; for talipes varus, those of the tibialis anticus and posticus, and sometimes the tendo-Achillis in addition to the two tibials.

XXV.—ECTROPION, OR ECTROPIUM.

Definition.—Eversion of the eyelid, so as to give rise to constant exposure, to a greater or less extent, of the eyeball.

Causes.—Contraction of cicatrices, arising from burns, wounds, or abscesses in the neighbourhood of the orbit; also dropping of the lower lid as a consequence of paralysis. Slight ectropion also results, occasionally, from severe inflammation and thickening of the conjunctiva.

Treatment.—The only cure is by means of an operation. Slight cases may be cured by removing a portion of the redundant and thickened conjunctiva; in other cases it is necessary to narrow the palpebral orifice by removing a V-shaped portion of the lid, or by paring the edges of the lids at the outer canthus, and bringing the raw surfaces together by means of a suture, so that union may take place. If there has been much destruction of the tissue forming the eyelids, the deficiency should be made up by bringing a flap of skin from a neighbouring part.

XXVI.—ENTROPION, OR ENTROPIUM.

Definition.—Inversion of the eyelid.

Causes.—Spasmodic contraction of the orbicularis muscle, and distortion and thickening of the tarsal cartilage, which sometimes result from granular ophthalmia. The same condition may arise from the contraction of a cicatrix in the conjunctiva.

Treatment.—If due to contraction of the orbicularis, a narrow piece of the skin of the lid parallel to the ciliary margin should be removed, then the muscle to be exposed and a corresponding piece removed. If due to distortion and thickening of the tarsal car-

tilage, a wedge-shaped piece of this structure must be removed.

XXVII.—ENCEPHALOCLE.

Definition.—An abnormal condition of the head, in which a portion of the brain protrudes through the skull, forming an elastic tumour.

Causes.—This condition is met with in infants as a congenital affection, and is due to deficiency of the bones of the skull, or some portion thereof.

Treatment.—These cases should, as a rule, be left to nature. Most surgeons would be content to diagnose such a condition.

XXVIII.—EPULIS.

Definition.—A tumour of a fibrous or fibro-plastic nature, arising from the gum, the periodontal membrane, or the alveolar process, or it may be from some portion of one of the bones of the jaw.

Causes.—Little can be said as to the causes of these tumours. They probably arise from some local irritation, such as that caused by a diseased fang of a tooth remaining in the jaw.

Characters.—A true epulis tumour consists of a hard dense mass, made up of fibrous tissue and myeloid cells, which usually grows from the edge of the alveolar process, between two standing teeth, and most frequently on the labial or buccal side of the gum. It grows very slowly and may vary in size, from that of a pea to that of a walnut, and in some cases it is even much larger. They give rise to little pain, and do not bleed very readily. The surface of the tumour has the same appearance as that of the gum.

Treatment.—The only treatment is entire extirpation with the knife, together with the portion of alveo-

lar process or bone from which it springs. Sometimes it is also necessary to remove some of the adjacent teeth.

XXIX.—ERYSIPELAS.

Definition.—A specific disease characterised by local inflammation of the skin or of the skin and cellular tissue, and having a strong tendency to spread.

Varieties.—Surgeons recognise three varieties, viz.:

- (a) *Simple cutaneous erysipelas*, in which there is diffused inflammation of the skin, the deeper tissues being scarcely, if at all, affected.
- (b) *Cellulo-cutaneous or phlegmonous erysipelas*, in which both the skin and subjacent cellular tissue are attacked.
- (c) *Cellular erysipelas*, in which the inflammation is confined to the planes of cellular tissue, the skin being unaffected.

When the disease arises spontaneously it is called ‘idiopathic,’ and when it follows an injury it is called ‘traumatic.’

Causes.—Erysipelas is said to arise from the introduction of some morbid material into the blood ; being, in fact, dependent upon blood-poisoning. Recent researches go to prove that the exciting cause of erysipelas is the introduction of a microbe into the blood. It is both infectious and contagious. It generally attacks those who are out of health from irregularities as regards mode of living—intemperance and inattention to cleanliness. Some persons appear to be predisposed to the disease, and get an attack on the least exposure to cold or other slight exciting cause. Wounds and injuries are the most frequent exciting causes of erysipelas, especially when these occur in persons who are in a low, debilitated state.

Symptoms.—The local manifestations are generally

preceded by severe constitutional disturbance. At first there may be chilliness and rigors, headache and nausea, often followed by vomiting and high fever. The tongue is thickly furred, and generally the bowels are constipated. The local symptoms are: in the cutaneous variety, redness of the skin, which disappears on pressure, returning immediately on the pressure being removed, burning sensations in the part affected; there is some swelling, and the skin feels raised and thickened when contrasted with the neighbouring unaffected parts. Occasionally vesicles containing serous or sero-purulent fluid form on the skin, and if the part attacked contains much loose cellular tissue, as in the scrotum or eyelids, it becomes œdematous. In the cellulocutaneous variety, the local symptoms are much more severe, both the skin and cellular tissue being intensely inflamed. From the first the part feels more solid than is natural; it pits on pressure, but as the cellular tissue becomes more infiltrated with inflammatory products, the skin feels tight from tension, and ceases to pit on pressure. The patient complains of intense pain and a burning or throbbing sensation. The constitutional disturbance is also much more severe. In cellular erysipelas, or *cellulitis*, as it is generally and more properly termed, the cellular tissue, instead of the skin, is primarily attacked. There is diffused swelling and induration of the cellular tissue, the inflammation spreading rapidly in the planes thereof. The tissues feel brawny and the skin tense. After a time suppuration takes place, the skin sloughs, and extensive destruction of tissue follows.

Course and Terminations.—Simple uncomplicated erysipelas generally runs its course in from ten to fourteen days, the inflammation increasing for the first few days (about four), after which it declines, the

redness and swelling diminish, and the skin desquamates. This mode of termination is the most favourable, and is termed 'resolution.' In other cases, large vesicles or 'bullæ,' containing serum, form on the surface. These dry into scabs, and after a time peel off. Occasionally simple erysipelas is followed by suppuration, forming small local abscesses. In phlegmonous and cellular erysipelas, suppuration is very common, and sloughing of the skin and cellular tissue takes place, sometimes to an alarming extent. In many cases the disease terminates fatally. If the disease attacks a wound, secretion in the part is arrested, the wound, if nearly healed, reopens and generally ulcerates. With the severer forms of erysipelas, internal complications of an inflammatory type and very fatal character often occur.

Prognosis.—Favourable in simple erysipelas, except in old and feeble patients, or those suffering from organic disease of the kidneys, or other internal organs. Phlegmonous and cellular erysipelas is at all times very serious, and the prognosis should be guarded. The probability of a fatal issue depends, in a great measure, on the amount of constitutional disturbance and fever.

Treatment.—In simple erysipelas, the first indication is to clear out the bowels. Afterwards, perchloride of iron, may be given either with or without small doses of sulphate of magnesia, according to the state of the bowels and evacuations. If there is much prostration, ammonia and bark, with a liberal allowance of stimulants, are necessary. In all cases, nourishing liquid diet should be given, such as essence of beef, soups, milk, and milk with the yolk of eggs. As to local treatment, no absolute rule for all cases can be laid down. Some do well with cold lotions constantly applied; but, generally, warm applications, such as poppy-head or chamomile fomentations, answer

best. Dusting the part over with flour, so as to exclude the air, is a good plan; and painting the parts over with collodion or solution of nitrate of silver is also recommended. In the cellulo-cutaneous form of the disease, free incisions should be made through the skin, so as to relieve the tension and to allow the serum effused in the cellular tissue to escape. In case of suppuration and sloughing, matter must be let out at once, and the parts well fomented. In bad cases of sloughing erysipelas of the limbs, amputation may be necessary in order to save life.

XXX.—ERYTHEMA.

Definition.—An affection of the skin characterised by local hyperæmia or superficial redness, closely resembling simple cutaneous erysipelas, and attended with more or less swelling and itching.

Varieties.—Different names have been given to this disease, according to the form which it assumes. Thus, there are :—

- (a) *Erythema simplex*, when there is merely simple vascular congestion of the skin, with little or no swelling.
- (b) *Erythema fugax*, when the local red patches are very transient, and change their situation suddenly, as though by metastasis. There is more swelling and itching of the part in this than in the simple variety. This form generally appears on the face or body, and usually arises from some irritation of the digestive organs from eating pork, shell-fish, or tainted food.
- (c) *Erythema papulatum* or *tuberculatum*, when the redness takes the form of small patches or clusters of papules or tubercles. These generally appear on the hands or fingers.

- (d) *Erythema intertrigo*, when the redness is due to the friction of two folds of skin, and the irritation of moist secretions.
- (e) *Erythema annulare*, when the redness assumes the form of a ring.
- (f) *Erythema iris*, when there is a central red spot or small ring within a larger ring, or, it may be, several rings arranged in a concentric manner.
- (g) *Erythema circinatum* or *gyratum*, when there are a number of rings of erythema which meet and cross each other, forming irregular figures consisting of broken segments of circles. [*e, f, g* are only different stages of the same disease.]

(h) *Erythema nodosum* (see Aid XXXI.)

In addition to the above the terms *erythema laxæ* and *erythema pernio* are used, the former to describe the redness occasionally seen on the hot and tense skin of œdematous legs, and the latter the redness of an unbroken chilblain. Other names have been introduced by dermatologists, but they serve only to confuse the student.

Causes.—Simple erythema frequently arises from local causes, such as heat, injury, or irritation. In other cases the cause must be looked for in some disturbance of the digestive, nutritive, or uterine functions, general debility, or in some constitutional state of a febrile character.

Treatment.—The local heat and irritation of erythema is generally relieved by soothing applications, such as benzoated oxide of zinc ointment, lead cerate, or lead lotion. Internally, mild purgatives and salines, and subsequently, bitter tonics with the mineral acids.

In chronic cases arsenic is valuable, and in females it is often necessary to give aloes and iron in order to regulate the uterine functions.

XXXI. ERYTHEMA NODOSUM.*

Definition.—As its name implies, this disease is characterised by red and hard or knot-like swellings, which usually appear on the front of the legs, the swelling being due to circumscribed inflammation of the skin and subcutaneous cellular tissue.

Clinical Phenomena.—For two or three days before the eruption appears the patient complains of weakness, loss of appetite, and aching pain of the legs. There is generally feverishness, the temperature sometimes rising two or three degrees; white furred tongue, gastric disturbance, and inability to sleep. The pain of the legs increases, and often the patient is quite unable to walk or even stand. The pain is said to resemble that of acute rheumatism. On examining the legs, one or two, or, it may be several, red spots will be seen, sometimes round, but generally oval or oblong, and almost always on the front aspect over the shin. The spots vary in size from half an inch to an inch, or it may be two inches, in diameter. The spots are hot, painful, very tender, and hard to the touch, the induration extending deeply into the tissues. The spots are at first of a bright red, but in a few days

* This affection is considered separately, as it bears little or no resemblance to the ordinary forms of erythema. Although usually classed as a surgical disease, it appears to have greater claim to be classed among medical diseases. Certainly, the constitutional disturbance in well-marked cases of this affection is out of all proportion to the local manifestation. In many cases which have come under the author's notice, the clinical features have closely resembled some of the exanthemata.

they change to a purplish hue, and finally become greenish or yellow, disappearing entirely in about ten or twelve days. Rarely similar spots appear on other parts of the body. It is not contagious, but sometimes two or three members of a family will be attacked at the same time.

Causes.—Little appears to be known as to the cause of this peculiar affection. It is met with both in old and young of both sexes, but it is most frequently seen in females. In women it is generally associated with disordered menstruation or the climacteric period. In some cases it appears to be due to unwholesome food, or drinking water contaminated with organic filth. Impure drink or food should be suspected as the cause when several members of the same family are simultaneously suffering from the disease.

Treatment.—In the early stage mild purgatives and effervescing salines should be given, and after the feverishness has subsided, a mineral acid with a vegetable bitter. The diet should be light and nourishing. Cases depending on uterine derangement require special treatment. Locally warm applications afford relief.

XXXII.—EXOSTOSIS, OR BONY TUMOUR.

Definition.—A tumour growing from and attached to the surface of a bone, in structure either identical with, or closely resembling, the bone from which it springs.

Causes.—Little can be said as to the cause of these outgrowths. Often their origin cannot be traced. Occasionally they are said to result from a blow or continued pressure on the bone.

Characters, Situation, etc.—These tumours are

hard, immovable, slow in growth, and painless unless they happen to press on nerves, blood-vessels, or sensitive parts. Generally they are globular, with narrow peduncle, but they may be pointed or curved at the summit, with a broad base of attachment. They may arise from any bone, but their most common sites of origin are the end of the ungual phalanx of the great toe, and near the junction of the shaft and epiphysis of long bones, generally of tibia and femur. When they arise from the cranial bones they are usually very hard and dense, like ivory, and hence are called *ivory exostoses*. Occasionally a diffused bony mass is found arising from the periosteum, to which the name *periosteal exostosis* has been given. In this case the tumour is simply the result of local periostitis, the organized inflammatory products having undergone ossification. Rarely, loose bony tumours are formed in the sinuses of the bones of the skull. These are appropriately termed 'enostoses' by Bryant. It is impossible to diagnose these cases unless the tumour makes its way to the surface by absorption. The internal surface of the cranium is also subject to exostoses. When such exist the growths press on the brain, and sometimes give rise to epileptic fits.

Treatment.—In the early stage the administration of iodide of potash and the external application of iodine or mercurial ointments have been recommended, with a view to promote absorption, but, as a rule, such measures serve only to amuse the patient. The only treatment likely to effect a cure is removal of the entire growth. This is done by cutting down on the tumour, freeing the soft parts and then breaking or cutting off the tumour level with the surface of the bone by means of a chisel or gouge. When, as in some cases of cranial exostosis, the whole cannot be

removed, cut off as much as possible, and the remainder may subsequently exfoliate. As some risk attends these operations, they should not be hastily performed, or unless the tumour gives rise to much inconvenience.

XXXIII.—FISSURE AND ULCER OF ANUS.

Definition.—A crack or ulcer of variable extent in the mucous membrane of the anus, generally commencing at its junction with the skin, and extending upwards a greater or less distance towards the *internal* sphincter.

Causes.—Said to be caused by sedentary habits, habitual constipation, and the passage of large and hardened stools. Frequently fissures and ulcers will be found to be associated with piles ; indeed, hæmorrhoids are probably the most common cause of fissure.

Symptoms.—The chief symptom is pain on defæcation, of a most acute character, often continuing for many hours. Generally the pain commences at the time of the passage of fæces, but occasionally it does not come on until some minutes afterwards. Often the fæces are streaked with blood, and if the ulcer is a large one, or the fissure deep, there will be considerable bleeding each time the bowel acts. There is usually frequent spasm of the sphincter, accompanied by intense pain. When the above symptoms exist, fissure or ulcer should always be suspected, but an examination must be made to confirm the diagnosis. Sometimes fissures and ulcers are multiple.

Treatment.—Laxatives must be given to soften the fæces and prevent straining at stool. Or injections of warm water may be administered for the same purpose. The local application of nitrate of silver or strong carbolic acid often effects a cure in simple cases

without cutting, but in severe cases, or when the ulcer is deep or large, it will be necessary to make an incision through the fissure, or base of the ulcer, so as to divide the fibres of the external sphincter. This relieves the pain immediately. As the operation is a very painful one, a little ether or chloroform should be given. The after treatment is simple—rest, attention to diet and the state of the bowels, being the chief points.

XXXIV.—FISTULA IN ANO.

Definition.—The name given to the sinus in the neighbourhood of the anus or lower part of the rectum, which usually remains unhealed after anal abscess.

Varieties.—Fistulæ in ano are of three kinds :

- (a) *Blind internal* ; when there is an opening into the lower part of the rectum, but no external opening.
- (b) *Blind external* ; when there is an external opening, but no communication with the bowel.
- (c) *Complete* ; when both an internal and external opening exists.

Treatment.—The best and most satisfactory treatment is division by means of the knife of all tissues superficial to the sinus, the incision to extend from the external opening—when it exists—into the bowel. A *blind internal* fistula should be converted into a *complete* fistula by passing a bent probe into the opening in the rectum, and allowing it to pass along the sinus as far as possible, and when the point of the probe can be made out to cut down upon from the external surface. A *blind external* fistula is readily converted into a complete fistula by passing the probe—

pointed director, at the time of operating, into the sinus, and forcing it through the bowel. Some surgeons recommend division of the tissues by means of an elastic ligature, a plan which may be adopted when the patient will not submit to the knife. Another substitute for the knife is the galvanic cautery and a metallic wire, by which the tissues can be readily divided. Operations in this part being always very painful, it is generally advisable to give chloroform or ether. Much care is needed in the after treatment to see that the wound does not close in at the surface before the deeper parts have healed. The horizontal position must be maintained until the cure is complete.

XXXV.—FISTULA IN PERINÆO, OR URINARY FISTULA.

Definition.—An opening from the perineum or parts closely adjacent into the urethra, which permits the urine to pass through it during micturition.

Causes.—Generally arises from extravasation of urine or the bursting of a urinary abscess in the perineum or scrotum. Sometimes it results from a wound in the perineum or urethra, whether produced accidentally or by the surgeon's knife, as in the operation for lithotomy.

Treatment.—If, as generally happens, the affection is associated with stricture of the urethra, the stricture must be kept fully dilated, so as to allow the urine to flow readily through the urethra. If the fistula does not heal after dilatation of the stricture, local stimulation is necessary, such as may be obtained by the application of the actual or galvanic cautery or

nitrate of silver. When the fistula will not heal in consequence of the urine finding its way into it each time the patient micturates, he should be instructed to pass a full-sized catheter each time he requires to empty the bladder.

XXXVI.—GALOCTOCELE.

Definition.—A cystic tumour, containing milk, which occasionally forms in the breast during lactation.

Cause.—Milk tumour is said to arise from an obstruction or rupture of a milk duct, by which the milk is retained in the breast.

Symptoms.—Beyond the presence of a painless fluctuating tumour in the substance of the mammary gland, this affection gives rise to no particular symptom. There is scarcely any pain, and no constitutional disturbance, as in abscess.

Treatment.—Free incision to evacuate contents, and the usual after treatment to ensure healing by granulation from the bottom.

XXXVII.—GANGLION.

Definition.—A ganglion is a tumour situate in the course of a tendon which takes its origin from its sheath, and which usually consists of a sac containing clear, viscid, synovial fluid.

Varieties.—Ganglion occurs in two forms:—

(a) *Encysted.*

(b) *Diffused or compound.*

In the *encysted* variety the swelling is globular, generally hard, and, if of great size, translucent. Sometimes the swelling is soft and fluctuating. The sac is derived from the synovial membrane of the

sheath which is protruded through an opening in the sheath itself. Its most frequent situation is on the dorsal aspect of the wrist, in the course of one or other of the tendons. Similar tumours may occur in connection with the flexor tendons.

In the *diffused* variety the swelling is irregular, with no defined outline, and deep-seated in the course of the tendon. Sometimes several tendons are involved, and when this occurs in the hand, the extensive and diffused swelling causes much deformity. This form often affects the flexor tendons of the hand and wrist. In addition to synovial fluid, the diffused ganglion usually contains a number of small deposits, resembling melon-seeds, and which are commonly known as 'melon-seed bodies.'

Causes.—The most frequent—if not invariable—cause of ganglion is strain or twist of the tendons, and is very common in women who are much engaged in washing and wringing clothes. Pressure, friction, and rheumatism are also given as causes.

Treatment.—The simplest cure in the case of *encysted* ganglion is to rupture the sac by firm pressure with one or both thumbs. The fluid contents then escape into the surrounding cellular tissue, and soon become absorbed. After rupturing the ganglion, pressure by means of a pad and bandage should be applied for a few days. If pressure fails to rupture the ganglion, it may be punctured with a grooved needle or incised subcutaneously by means of a fine tenotomy knife, and the contents squeezed out. A pad and bandage should be applied for a few days with a view to prevent the sac refilling. If the tumour reappears, the same treatment may be tried again; but in obstinate cases it has been recommended to pass a seton through the sac, removing it as soon as inflam-

mation has been set up. This method is attended with some danger, as the inflammation may spread to tissues beyond. Application of iodine, blisters, and mercurial ointments have been recommended, but these are generally useless. *Diffused* ganglion requires free incision into the sheaths of the tendons, so as to permit the free exit of the contents, the hand and arm being kept on a splint for some days before and after the operation. The operation is a somewhat severe one, and attended with considerable risk. Not only may the subsequent inflammation permanently impair the use of the limb, but it is said life may be endangered. These risks should be explained to the patient before operating.

XXXVIII.—GANGRENE, MORTIFICATION OR SPHACELUS.

Definition.—The terms gangrene, mortification, and sphacelus are generally used indiscriminately to signify the death of any part of the body either as a consequence of accident or disease. Strictly speaking, the term gangrene should be used only in the case of the soft tissues, and when the process of mortification is still going on but not actually completed. When the part is dead it is said to be in a state of sphacelus. In the soft tissues, the dead, or mortified portions, are called ‘sloughs.’ In the case of death of bone, the process is called ‘necrosis,’ and the dead portion is called a ‘sequestrum.’

Causes.—Mechanical or chemical violence; constriction and strangulation of a part, as seen in strangulated hernia; cutting off the blood supply, as in wound, ligature, embolism, or disease of the arteries; arrest of venous circulation; spontaneous idiopathic

inflammation, as in carbuncle; excessive cold; constitutional disease, as in scurvy and syphilis; privation, and improper food. In countries where rye is a common article of diet, gangrene of the extremities takes place from eating diseased or 'spurred' rye.'

Varieties.—There are three chief varieties of gangrene, viz.:—(a) *Traumatic*, when arising from mechanical or chemical injury; (b) *Anæmic* (including senile gangrene), when a consequence of cutting off the arterial blood supply; and (c) *Static*, when due to arrest of the venous circulation. The terms 'moist' and 'dry gangrene' are used, but these refer to the local condition of the part during the process, the parts being either moist or dry according as to whether the blood supply is cut off or not.

Symptoms, Course, etc.—The symptoms and course of gangrene vary according to the cause. Hence each variety must be considered separately.

(a) *Traumatic Gangrene.*—Traumatic gangrene may be *direct* or *indirect*. In the former the vitality of the tissue is destroyed at once, as is seen in cases where strong corrosive acids or caustics are applied to the skin. In the latter, the death of the part is preceded by, and is consequent on, inflammatory action. A typical example of indirect inflammatory gangrene is seen in some cases of bad compound fracture. In such cases the limb swells rapidly, the skin becomes mottled and livid, phlyctenæ or bullæ, containing blood-stained serum, form on its surface, and on being pressed with the finger, crepitation from the generation of gas can often be distinguished. The temperature of the limb falls considerably, and it loses sensation. In

this form there is a strong tendency for the gangrene to spread upwards, and often amputation of the limb must be performed in order to save life, but occasionally the gangrenous action stops just beyond the limits of the injury. When this takes place a vascular line, called 'the line of demarcation,' appears at the point where the dead and living tissues meet. The vascular line soon ulcerates, and the soft parts on the diseased side separate, by the process of sloughing, from the living tissues, and finally, unless otherwise dealt with, the diseased bone becomes separated also. The progress of the disease is accompanied by an extremely foetid smell, and before separation the limb becomes quite black and decomposed. The separation of a limb from gangrene is seldom accompanied by hæmorrhage.

- (b) *Anæmic Gangrène*.—Under this head are included all cases where gangrene results as a consequence of the part being deprived of its usual supply of blood, whether the original cause be accident or disease. Examples of this are sometimes seen in cases where the main artery of a limb has been ligatured or severed by accident, or where it has been plugged by an embolic clot, and collateral circulation has not been able to establish itself. In these cases the gangrene generally assumes the 'dry' form. The part beyond the seat of arterial obstruction becomes at first cold and bloodless, and has a waxy appearance; afterwards it withers, changes to a black colour, and before drop-

ping off becomes mummified. *Senile Gangrene* results from the blood supply of the part being cut off, and the process is the same, but more gradual in its action; but here the primary cause is atheromatous disease of the arteries. Gangrene from excessive cold ('frost-bite'), and from the use of ergot of rye, is of the 'anæmic' variety, and runs the same course as that caused by direct arterial obstruction.

- (c) *Static gangrene*.—This variety of gangrene results from obstruction to the venous circulation, and as the part is overcharged with blood, the gangrene assumes the moist form. Examples of this are seen in strangulated hernia, constriction of a limb from tight and prolonged bandaging; the prolonged application of a tourniquet to check hæmorrhage; pressure of tumours on the large venous trunks: and stasis of blood, in the case of aged persons suffering from obstructive heart disease.

The constitutional symptoms vary according to the age of the patient and the form of gangrene. In senile gangrene and chronic cases the constitutional disturbance may be very slight, but in traumatic gangrene there is extreme depression of the system, and the patient often rapidly sinks from exhaustion. In these cases, before gangrene sets in, and during the inflammatory stage, there is much fever and excitement, the pulse being rapid and full, and the temperature from 103 to 105 degrees, but just as the gangrenous action commences, the temperature falls suddenly 4 or 5 degrees, or perhaps more, and the pulse becomes feeble and intermittent.

Treatment.—This depends upon the cause ; but in all cases it is necessary to support the patient with a liberal diet, and stimulants are generally required. If there is any pain, it should be relieved by means of chloral or morphia. In traumatic gangrene, if of limited extent, attention should chiefly be directed to keeping the parts perfectly clean, and to promoting the early separation of the sloughs by means of warm poultices made with equal parts of linseed-meal and charcoal, or irrigation with warm water, to which a small quantity of some antiseptic fluid has been added. The slough having been detached, the ulcerated surface is to be treated in the ordinary manner. If the gangrene is extensive, and it is a part which may be removed, amputation should be performed, but no more of the limb should be removed than is absolutely necessary. Sometimes, as in bad compound fractures, amputation should be performed as soon as inflammatory action has set in, and before gangrene declares itself. When gangrene is spreading rapidly from general causes, it is useless to amputate, as the disease attacks the stump, but if it is merely spreading from local causes, amputation is generally successful. In anæmic gangrene little can be done beyond endeavouring to prevent its extension until after the line of demarcation has begun to slough, when in the case of a limb amputation may be performed, of course removing as little as possible. Until the parts are ready for the operation, the limb should be kept warm and clean. As an application, lint, saturated with carbolized oil, is, perhaps the best, and the whole limb should be surrounded with cotton-wool. Opium to be given in case of pain, and the diet to be liberal and nourishing. This treatment also applies to senile gangrene, in which operative interference, as a rule, is not advisable, but in gangrene from embolism,

or from the effects of ergot of rye, amputation may be performed as soon as the line of demarcation can be made out, if the general condition of the patient permits. In 'static gangrene' the first indication of treatment is to endeavour to remove the cause of the obstruction and restore the venous circulation. If this can be done early, the parts may be saved, but if the gangrene is progressive in spite of treatment, it is unwise to delay operative measures.

XXXIX.—GLANDERS OR EQUINIA.

Definition.—A specific contagious disease, originating in the horse, mule, or ass, and communicable to man, the chief manifestations of which are profuse suppuration of the mucous membrane of the nasal cavities, pustular cutaneous eruptions, and glandular swellings.

Varieties.—In the horse this disease shows itself in two forms. In one the nasal mucous membrane and neighbouring glands only are affected, but in the other the disease attacks the lymphatics of the whole body, the nasal mucous membrane being unaffected at first. The latter form is generally called 'farcy.' In men the disease may assume either form, but generally the symptoms of both manifest themselves in the course of the attack.

Causes.—In the horse this disease may, it is believed, arise spontaneously, or from inoculation, but in man it is always produced by contagion, or through inoculation of the matter from a glandered animal, or from another person suffering from the disease; hence in man it is most commonly met with in those who are employed in stables.

Symptoms.—After an incubation stage, which may last from three to eight, or even fifteen days, high fever sets in, accompanied by delirium, profuse perspirations, severe pains in the head, back, and limbs, and sometimes diarrhœa. Shortly after the commencement of feverish symptoms, small red spots appear on the skin of the face, neck, and abdomen, and sometimes on the arms and legs also. This cutaneous eruption goes through all the stages of papule, vesicle, and pustule, having a hardened base, and red areola somewhat resembling the eruption of small-pox. The pustules sometimes dry up, forming dark-brown crusts, but more frequently they soften down, leaving excavated ulcers. In addition to the eruption, the subcutaneous lymphatic glands become inflamed, which can be felt as small nodules beneath the skin. These are called ‘farcy buds.’ After a time the ‘farcy buds’ soften down, forming abscesses which, after discharging their contents, leave deep indolent ulcers. Hard nodules also form, in connection with the mucous membrane of the nose, mouth, throat, and respiratory passages, the Schneiderian membrane becomes inflamed and ulcerated, giving rise to an abundant discharge, at first thin and clear, but rapidly becoming purulent, viscid, and foetid, and sometimes mixed with blood. Other complications which may occur, are, œdema and erysipelas of the head and face; large bullæ on the face, trunk, and other parts of the body, leading to gangrene; diffused abscesses of the large joints; tubercular deposits in the internal organs; and pneumonia. The above apply to the *acute* form of the disease, but, rarely, it assumes a *chronic* form, when the symptoms are much less virulent. In *farcy*, which may be either acute or chronic, the mucous surfaces of the nose, pharynx, etc., are not implicated, and, in some cases, there is no pustular eruption; the chief manifestation being inflam-

mation of the lymphatic vessels and glands; but it occasionally happens that a mild case of farcy terminates in acute glanders.

Prognosis.—With such a train of symptoms it is only to be expected that this disease should be extremely fatal. Recovery rarely takes place, except in mild and chronic cases. In acute cases death may take place in a few days, but as a rule the disease lasts for three or four weeks. Death takes place from exhaustion; coma, and low delirium ushering in the closing scene.

Treatment.—Attention should be chiefly directed to keeping up the patient's strength, by means of a liberal supply of nourishment, stimulants, and tonic medicines. Abscesses are to be opened as soon as matter has formed; all discharging surfaces are to be treated antiseptically, and the nasal cavities well syringed with lotion containing creosote or carbolic acid. Mercury and iodide of potassium are said to have effected cures.

XL.—EQUINIA MITIS.

This is a disease which attacks the hands and other parts of the body of those who have the care of horses affected with 'grease;' being propagated by inoculation. The chief manifestation is a crop of pustules, which, when mature, closely resemble those of vaccinia, but are rather larger. There is very little constitutional disturbance, and no treatment beyond an occasional aperient is necessary, as the eruption runs a regular course, and dries up about the tenth or twelfth day, forming a scab, which falls off, leaving a cicatrix.

XLI.—GLOSSITIS.

Definition.—An inflammatory condition of the tongue, characterised by great swelling and pain.

Causes.—The most frequent cause is salivation, but at times it is impossible to trace the cause. Wounds and local irritation may cause inflammation of the tongue, and it may arise from cold in persons who have carious teeth.

Symptoms.—Pain and inability to move the tongue, which rapidly swells, sometimes to such an extent as to entirely fill the mouth, preventing speech and deglutition. In extreme cases the patient may die from suffocation. The inflammation may subside under treatment, but occasionally it ends in suppuration.

Treatment.—Saline purgatives should be freely given at first, followed by tonics. Locally, fomentations or astringent gargles should be tried, but if these fail to give relief, leeches may be applied or free vertical incisions or punctures made. If an abscess forms, it should be opened as soon as possible.

XLII.—GONORRHŒA, OR CLAP.

Definition.—A disease of the genital organs, in which the chief symptom is inflammation of the mucous membrane of the urethra in the male, and the vagina or urethra in the female, accompanied by a discharge of purulent or muco-purulent matter.

Causes.—Usually arises from having connection with a person suffering from the disease, the discharge, when purulent, being highly contagious; but in the

male, inflammation of the urethra (urethritis) with discharge may result from the irritation caused by the passage of an instrument into the bladder, and in some men a mild form of gonorrhœa follows excessive sexual intercourse, or after connection with a woman during her catamenial period, or one suffering from leucorrhœa.

Symptoms.—*In the male.*—At first there is slight itching at the orifice of the urethra, which is redder than usual, and there is smarting or sensation of heat on micturition. Shortly after the onset of these symptoms a minute quantity of thin muco-purulent fluid may be squeezed from the urethra. If the disease is not checked, acute inflammatory symptoms come on in a few days. The urethra becomes intensely inflamed, the discharge very abundant and thick, and of a yellow or greenish-yellow colour, sometimes streaked with blood. Micturition is difficult, there being much pain and scalding, and there is frequent desire to pass urine. In consequence of the inflammation the penis swells, especially the glans, which becomes very red and exquisitely painful. During the acute stage there is much aching and tenderness of the neighbouring parts, the groins, perineum, testicles, shooting-pains down the thighs, etc., and the patient is much disturbed at night with painful erections (chordee). *In the female.*—As in the male, the first symptoms are heat, pain, and swelling of the affected parts. The inflammation may affect the external parts only, viz., the labia, nymphæ, meatus urinarius and surrounding mucous membrane, a condition termed *vulvitis*, or it may extend to the mucous membrane of the vagina, and even to the canal of the cervix uteri. There is profuse thick yellow discharge, which is some-

times foetid, and there is much pain in walking, and micturition is frequent and painful.

Diagnosis.—There is no certain means of distinguishing the discharge of gonorrhœa from discharges that may arise from other causes. Gouty and rheumatic subjects often have a slight discharge from the urethra, which may not be of venereal origin, and those who are the subjects of stricture get mild attacks of urethritis, resembling gonorrhœa, after hard drinking and excessive venery. In women it is not at all uncommon to meet with cases of vaginal discharge of muco-purulent matter, in which no suspicion of venereal origin can be entertained. Constitutional debility, urinary disorders, and neglect of the ordinary rules of cleanliness, may give rise to vaginal discharge, and in little girls, and even in infants, cases of discharge of yellow purulent matter from the vagina are not at all unfrequent. These cases generally occur in children who are neglected, or dirty in their habits, or who are strumous, and it is believed that ascarides give rise to local irritation which may result in vaginal discharge, especially if the children are not properly attended to as regards bathing, etc.

Complications.—It is rarely that an attack of gonorrhœa runs its course without giving rise to some complication. The most frequent are—(a) Inflammation of bladder and urinary organs generally; (b) Prostatitis; (c) Epididymitis and orchitis in the male, and ovaritis in the female; (d) Penile abscesses; (e) Urethral hæmorrhage, due to rupture of small vessels during violent chordce; (f) Sympathetic bubo (*vide* Aid XVII.); (g) Balanitis (*vide* Aid XV.); (h) Phimosis and paraphimosis; and (i) Gonorrhœal rheumatism (*vide* Aid XLIV.). Most of these compli-

cations will be further considered under their respective headings.

Sequelæ.—In men, long standing and severe attacks of gonorrhœa often give rise to stricture of the urethra, and chronic gleet is a frequent consequence, especially in neglected or badly treated cases. Warty growths from the mucous surfaces of the genitals, as a sequel of gonorrhœa, are common in both sexes.

Treatment.—*In the male.*—If the patient is seen at the onset of the disease, before inflammatory symptoms have set in, a gonorrhœa may often be cut short by the frequent injection into the urethra of a weak solution of tannic acid, sulphate of zinc, or alum (2 or 3 grains to the ounce). Strong injections do more harm than good. Injection of nitrate of silver solution is a dangerous remedy, although sometimes it cures immediately. If there is much inflammation or swelling, injections must not be used. The patient should rest as much as possible, take light diet, and copious diluent drinks; avoid all stimulants, and bathe the parts with warm water. By way of medicine, saline aperients will be found to answer best in most cases. A good mixture is the *Mistura Alba* of the hospitals, with about 10 or 15 grain doses of bicarbonate of potash, and half-a-drachm doses of tincture of henbane. Often no other form of medicine is required. Oil of sandalwood is highly recommended in doses varying from 20 to 30 or 40 drops, and in some cases it acts like a charm. Copaiba and cubeb are much used, especially by quacks and amateur doctors, but they are disgusting drugs to take, and are rarely necessary. In some persons copaiba gives rise to a form of urticaria. Complications must be treated as they arise. In inflammation

of the bladder, rest in the horizontal position, hot baths, and alkalies with henbane or opiates are necessary; in prostatitis, hot baths, leeches to the perineum, and opiates; catheter to be used if there is retention of urine. In epididymitis and orchitis, prescribe rest and fomentations, or leeches; or, in orchitis, the testicle may be punctured with a fine-pointed bistoury, if the patient is quite willing to accept the consequences; internally, saline purgatives should be freely given, and opiates to relieve pain and procure sleep. Urethral hæmorrhage may be checked by means of pressure or application of cold. Chordee may be relieved by means of full doses of opium, or extract of henbane, combined with camphor, and cold should be applied to the penis during the erections. With a view to preventing erections from occurring, the penis may be smeared with equal parts of extract of belladonna and mercurial ointment. Further details as to treatment of complications will be found under the respective headings. *In the female.*—Gonorrhœa is much more readily cured in the female than in the male. In the acute stage, saline aperients should be given, and hot fomentations of decoction of poppy heads used frequently, or hot baths. In the chronic stage, the discharge soon ceases under the use of tannic acid, acetate of lead, sulphate of zinc, or boric acid injections.

XLIII.—GLEET.

This affection is characterised by a thin discharge of muco-purulent matter from the urethra, and usually occurs as a consequence of severe gonorrhœa. Sometimes it occurs in persons who have stricture of the urethra, and occasionally it arises from the presence of a small ulcer within the urethra. By way of treat-

ment, the injection of weak solutions of tannic acid, or sulphate of zinc, gives the best results. The patient should be cautioned not to indulge too freely in stimulating drinks, and to avoid, as far as possible, all sexual excitement. If the patient is out of health generally, he should take the tincture of perchloride of iron, combined with quinine or small doses of strychnia. If there is a stricture of the urethra, it must be dilated before a cure can be effected; and if due to an ulcer, this must be treated with caustic, introduced on a catheter or bougie.

XLIV.—GONORRHŒAL RHEUMATISM.

Definition.—An affection characterised by rheumatic pains and swelling of the joints occurring during or immediately after an attack of gonorrhœa.

Symptoms.—As in ordinary rheumatism, pain and swelling of the joints are the chief symptoms; but the constitutional disturbance is generally much less. The knee and ankle-joints are the most frequent seats of the affection, although the elbow and shoulder-joints may also be attacked. Often it commences in the heel and sole of the feet when the pain is very acute, but at times only the muscles and their tendons are affected.

Treatment.—Hot fomentations locally when in the acute stage, and the internal administration of alkalies and opium. The bowels to be kept freely open with saline aperients. In the chronic stage, iodide and bromide of potassium combined with tonics are the most reliable remedies.

XLV.—HÆMATOCELE.

Definition.—The term hæmatocele is generally used to denote a collection of blood in the vaginal sac of the scrotum, but the same term is used to designate those rarer cases, in which there is effusion of blood into a cyst connected with the testis or the spermatic cord.

Causes.—Generally occurs as the immediate consequence of injury to the scrotum, but occasionally no cause can be assigned. Sometimes it arises from injury to the blood-vessels in tapping a hydrocele.

Symptoms.—The chief symptom is swelling of the part, and it comes on immediately or soon after the receipt of the injury. The swelling resembles that of hydrocele as regards shape, being generally pyriform. At first the tumour is soft, and fluctuation may be detected, but when the blood coagulates, its characters resemble those of a solid growth. There is some pain, which is increased on pressure. When the result of a blow, there is much discolouration of the scrotum.

Diagnosis.—Hæmatocele of the vaginal sac may be mistaken for hernia, or hydrocele, or solid growth of the testis. Its history, however, generally suffices to clear up the diagnosis, solid growths and hydrocele being slow in formation, whilst this generally forms rapidly after injury or a strain. Hydrocele may be known by its translucency; hæmatocele is opaque, but if in doubt, a puncture with a fine trocar will reveal the true nature of the tumour. From herniæ it may be distinguished by its having no connection with the abdominal cavity.

Treatment.—If a recent case, and seen soon after the receipt of the injury, the first indications of

treatment are to arrest the flow of blood and relieve pain. The patient must rest in the horizontal posture with the testicles raised, and the ice-bag, or cold lotions, to be applied to the swelling. By continuing this treatment, with the internal administration of saline purgatives, absorption of the effused blood takes place in many cases. When the blood remains fluid for a long time and absorption is not taking place, tapping may be performed, as in hydrocele. This may effect a cure, but occasionally the vaginal sac becomes refilled with blood. In chronic cases, and in cases where the clot is softening and there are signs of suppuration, a free incision should be made into the vaginal sac, or the cyst, as the case may be, and the clots turned out. The usual treatment should then be followed to promote healing of the wound by granulation. In rare cases by long continued pressure the testicle of the affected side becomes wasted. When this occurs excision has been recommended.

XLVI. HÆMATOMA AURIS.

Definition.—A tumour or swelling of the ear due to effusion of blood.

Causes.—May be caused by injury to the ear, but many cases are idiopathic, and are due to some obscure pathological change in the structure of the ear. In these cases it has been observed that the patients have been the subjects of general paralysis or other form of insanity, but the connection is not at all clear.

Symptoms.—If the result of injury, the chief symptoms are pain, swelling, and discolouration, but in idiopathic hæmatoma auris the affection commences

with flushing of the auricle, associated with heat and pain. In a few hours effusion of blood takes place, generally commencing in the concha and gradually spreading over the auricle.

Treatment.—In many cases the application of a lead lotion is sufficient to effect a cure, but if this fails the tumour may be incised and the fluids and clots turned out, or a seton may be passed through it.

XLVII. HÆMATURIA.

Definition.—An escape during micturition of blood from the urinary passages, and may come from (i) the kidney and ureter, (ii) the bladder, or (iii) the urethra.

Causes.—As a rule this condition is merely a symptom of organic or constitutional disease (purpura, scurvy, malignant fever, acute Bright's disease, renal embolism, etc.), but occasionally it arises from local causes or injury. The passage of bloody urine often follows severe blows over the loins or lower part of the body, indicating kidney mischief, or injury to the pelvis or perineum. Among local causes are ulcers and fungoid growths of the bladder, passage of renal calculi down the ureters, and the presence of calculus in the bladder or prostatic portion of urethra. Occasionally hæmaturia is caused by the administration of certain irritant drugs, such as cantharides and turpentine in large doses. Occurs also as a symptom in persons who suffer from the presence in their system of the parasites *Bilharzia hæmatobia*, or *Filaria sanguinis hominis*.

Treatment.—This depends upon the cause. If

arising from disease or constitutional causes, the treatment falls to the lot of the physician. In surgical cases the general treatment consists in entire rest in the horizontal position, application of ice to the loins and perineum, and over the pubes, and the internal administration of opium, gallic acid, matico, and cold drinks. If due to the presence of calculi or foreign bodies in the bladder or urethra, these must be removed as soon as possible. If the flow of urine stops, it may be necessary to use the catheter, but in hæmaturia instruments must be used with great caution.

[END OF PART I.]

AIDS

TO

SURGERY.

PART II.

BY

GEORGE BROWN, M.R.C.S., L.S.A.,

FORMERLY DEMONSTRATOR OF ANATOMY AT WESTMINSTER HOSPITAL MEDICAL
SCHOOL; GOLD MEDALLIST (1873), CHARING CROSS HOSPITAL; LATE
HOUSE-SURGEON AT CHARING CROSS HOSPITAL, ETC.



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PREFACE.

IT is extremely gratifying to me to find that the hope I entertained when I first decided to publish these "Aids to Surgery," viz. : that they might be of assistance to students preparing for surgical examinations, has been fully realized. Numerous testimonies of their value have reached me from time to time, but the best evidence of their usefulness is, I take it, their steady and continuous sale. My only regret is that other engagements have prevented me from making the present edition more perfect and complete ; such additions and corrections, especially in regard to methods of treatment, have, however, been made as recent progress in surgical science has rendered necessary.

G. B.

6 and 7, King William Street,
City, E.C.

CONTENTS.

	PAGE		PAGE
XLVIII. Hæmorrhoids, or Piles	5	LXXVII. Osteo-Arthritis, or Rheumatic Arthritis	44
XLIX. Hernia, or Rupture	8	LXXVIII. Osteitis, Osteo- myelitis, or Endosteitis and Periostitis	45
L. Inguinal Hernia	11	LXXIX. Osteo-Sarcoma...	48
LI. Femoral Hernia	12	LXXX. Osteo-Chondroma	48
LII. Umbilical Hernia	13	LXXXI. Otorrhœa	48
LIII. Treatment of Hernia	14	LXXXII. Ozæna	49
LIV. Herpes Preputialis	15	LXXXIII. Parotitis, or Mumps	50
LV. Hordeolum, or Styne ...	16	LXXXIV. Paraphimosis..	51
LVI. Hospital Gangrene, or Sloughing Phage- dæna	16	LXXXV. Phimosis... ..	52
LVII. Hydrocele	18	LXXXVI. Phlebitis	53
LVIII. Hydrops Articulī, or Hydrarthrosis	20	LXXXVII. Phlegmasia Do- lens, or White Leg	55
LIX. Iritis... ..	21	LXXXVIII. Pinguiculæ..	56
LX. Kcloid, or Cheloid	22	LXXXIX. Polypus... ..	57
LXI. Keratitis, or Corneitis	23	XC. Polypus Auri	58
LXII. Lipoma	24	XCI. Polypus Nasi	59
LXIII. Lipoma of Nose	25	XCII. Polypus Uteri	60
LXIV. Lupus Vulgaris	26	XCIII. Presbyopia	61
LXV. Medullary Cancer (Encephaloid, or Soft Cancer)	27	XCIV. Prolapsus Recti	62
LXVI. Melanosis (Melan- oid, or Melanotic Cancer)	29	XCV. Pterygium	63
LXVII. Meningocele	29	XCVI. Ptosis	64
LXVIII. Mollities Ostium (Malacosteon, Os- teomalacia)	30	XCVII. Quinsy, Cynanche Tonsillaris, or Acute Tonsillitis	64
LXIX. Myxœdema	31	XCVIII. Rachitis, or Rickets	65
LXX. Nævus, Telangeiec- tasis, or Angioma	32	XCIX. Ranula... ..	67
LXXI. Necrosis	34	C. Retinitis	67
LXXII. Nedes	36	CI. Rodent Ulcer	69
LXXIII. Noma	36	CII. Scirrhous, Carcinoma Fibrosus, or Hard Cancer... ..	70
LXXIV. Onychia	37	CIII. Spina Bifida	72
LXXV. Ophthalmia... ..	38	CIV. Staphyloma	73
LXXVI. Orchitis, Epididy- mitis, and Testitis	41	CV. Varicocele	74
		CVI. Varix	75

AIDS TO SURGERY.

PART II.

XLVIII.—HÆMORRHOIDS, OR, PILES.

Definition.—An enlarged, or swollen and dilated, condition of the hæmorrhoidal veins, situated around the anus.

Varieties.—There are two kinds of piles recognised :—

(a) *External* ; when the swollen veins are around the anus, external to the sphincter muscle. As a rule, external piles do not bleed. If they do not, they are commonly called “blind” piles.

(b) *Internal* ; when the affection is confined to the veins at the termination of the rectum, within the sphincter. This variety generally bleed freely, and are then termed “bleeding” piles.

Causes.—Sedentary occupations, habitual constipation, the action of drastic purgatives, luxurious living, sitting on damp or cold seats, and anything which prevents the return of blood from the hæmorrhoidal veins, such as pressure from abdominal tumours,

an overloaded colon, or pregnancy, or any disease of the liver which obstructs the circulation of blood through that organ.

Characters and Symptoms.—These differ according to the situation of the affection. In the *external* variety, the chief characteristics are pain and swelling at the margin of the anus. Sometimes only one vein becomes swollen ; but generally the terminations of two or three veins are dilated, and in bad cases there may be several swellings around the anus, varying in size from a small hazel-nut to a walnut. In the active or inflamed state, they are either of a bright-red or bluish colour, tense and exquisitely painful, especially when the patient attempts to walk or to sit down. In the *internal* variety, the first symptom that attracts notice is a discharge of blood when the patient goes to stool. Sometimes the amount of blood lost is small ; but often it is very large, in some cases amounting to several ounces each time the patient defecates. On examination with the finger internally, one or more swellings may be felt at the lower part of the rectum ; and if the patient sits over hot water, and strains, the piles may be extruded so as to be readily grasped. After straining at stool, the piles sometimes remain extruded, and being grasped by the contracted sphincter, extreme pain is caused until they are pushed back into the rectum. In bad cases, there is a feeling of heat and fulness at the lower part of the bowel, with occasional throbbing ; extreme pain at and after defecation, with frequent desire to go to stool. In some cases, there is distressing tenesmus, with prolapse of the rectum ; and in others, the urinary organs participate in the disease, there being much

irritation at the neck of the bladder, with frequent micturition, whilst occasionally there is retention of urine.

Complications.—Fissure of the anus (*vide* Aid XXXIII. Part 1), ulcers and prolapse of the rectum (*vide* Aid XCIV.), local abscesses, fistula, irritation of the urinary organs, retention of urine ; nerve pains around the loins, hips, and down the thighs.

Treatment.—This should be both local and general. In all cases the diet should be carefully regulated, plain nutritious food only being taken in moderation, and all stimulants to be avoided. The bowels must be kept gently open by means of mild laxatives, such as castor oil, the mineral waters, confection of senna or sulphur, or the compound liquorice-powder. In most cases, however, the best method of relieving the bowels is by the use of enemata of tepid water, by which the rectum is emptied without straining, as after the use of aperients. Confection of black pepper or Ward's paste, in drachm doses three times a day, is a popular remedy, but is far from an elegant one. Locally, in external piles, sponging with cold water has been recommended, but it will be found that most patients find the greatest relief from hot fomentations during the inflammatory stage ; warm bread poultices also afford relief, and in other cases the application of lead lotion answers well. In extreme cases the inflammation may be subdued by the application of leeches, bleeding being afterwards encouraged by hot fomentations. In mild cases the application of the unguentum gallæ cum opio or other astringent ointment or lotion is sufficient to relieve pain. If there is suppuration, the abscess should be opened as early as possible. To ensure a radical cure

excision is the only remedy. The operation is a very simple one, but it should be performed after the inflammatory symptoms have been relieved. The best method of removing external piles is by means of a pair of scissors, the tumours being drawn away from the skin with a pair of forceps, and then snipped off at the base. The subsequent bleeding may be arrested by application of cold and pressure. The pain of internal piles may often be relieved by an enema of laudanum, 20 or 30 drops in thin starch, or the use of quarter-grain morphia suppositories. Internal piles should never be excised. When an operation is necessary, they should be removed either by ligature or destroyed by the galvanic or actual cautery, the injection of carbolic acid—1 part of acid dissolved in 2 each of glycerine and water—by means of a hypodermic syringe, or by the application of caustic pastes, or fuming nitric acid. Some surgeons practise crushing by means of a forceps, the blades of which are acted upon by means of a screw, but the results are not generally so satisfactory as the operation by ligature.

XLIX.—HERNIA, OR, RUPTURE.

Definition.—The term *hernia* signifies the protrusion or displacement of any of the contents of one of the natural cavities. Thus, there may be hernia of the lung, of the brain, or of the intestines; but as generally used the term *hernia* or *rupture* signifies the protrusion of any of the viscera of the abdomen beyond the walls of the abdominal cavity.

Varieties.—Herniæ of the bowel are generally

classified according to the situation of the protrusion, thus :—

- (a) *Inguinal*, when the bowel (or omentum) passes out of the abdominal cavity through the inguinal canal.
- (b) *Femoral*, when the protrusion takes place through the crural canal.
- (c) *Umbilical*, when the protrusion takes place at the umbilicus.
- (d) *Obturator*, when protrusion takes place through the obturator foramen.
- (e) *Ischiatic*, when the protrusion is through the sciatic foramen.
- (f) *Diaphragmatic*, when protrusion takes place through the diaphragm.
- (g) *Ventral*, when protrusion takes place through some portion of the anterior abdominal wall not included in the inguinal or umbilical region.
- (h) *Perineal*, when the bowel descends in front of the rectum and forms a tumour in the perineum.
- (i) *Labial or pudendal*, when, in women, the bowel descends outside the vagina along the ramus of the ischium, and forms a tumour in the labium.
- (j) *Vaginal*, when, in women, the protrusion appears within the vagina.

The three first-named varieties are most common, and will be considered in detail hereafter. The others are rare, especially the three last-named. Many other terms are used to describe herniæ, the particular term depending upon some peculiarity, anatomical or pathological, thus :—*Scrotal*, when inguinal hernia

has descended so far as to reach the scrotum ; *congenital*, when a hernia occurs through the non-closure in the infant of the vaginal tubular process of peritoneum ; *encysted* or *infantile*, when an inguinal hernia occurs in an infant in which the vaginal tubular process of peritoneum remains patent, except quite at the upper part at its junction with the abdominal cavity ; *reducible* or *irreducible*, according as to whether the contents of the hernial sac can be pushed back into the abdominal cavity ; *obstructed* or *incarcerated*, when an irreducible hernia is temporarily obstructed, but not constricted, at the neck so as to check the circulation ; *strangulated*, when the bowel is constricted at the neck so as to check the circulation and stop the passage of fæces ; and *omental* or *epiplocele*, when the hernial sac contains omentum only. For details as to the rarer forms of hernia surgical textbooks must be consulted. The scope of these articles permits only of the further consideration of the three most common varieties, viz. : inguinal, femoral, and umbilical.

Causes.—Except in the congenital varieties, rupture is usually due to strain from lifting heavy weights, straining at stool, riding, etc. In infants, rupture may arise from continuous and severe fits of coughing. The ventral variety is met with in persons who have received some injury to the abdominal wall, such as incised wounds. It often occurs in women after ovariectomy, when a proper abdominal support has not been worn.

L.—INGUINAL HERNIA.

This form of hernia is said to exist when the protruded bowel, or omentum, occupies part or the whole of the inguinal canal. If it has not passed through the external abdominal ring it is called an *incomplete* hernia or *bubonocoele*. When it has passed through the external ring, and descended into the scrotum, it is called *complete* hernia, *scrotal* hernia, or *oscheocoele*. In the female, after emerging from the external ring, it passes into the labium, and is known as *labial* or *puudental* hernia. Excluding *congenital* and *infantile* hernia, there are two varieties of inguinal hernia, *direct* and *indirect*.

Indirect or *External Inguinal Hernia* escapes from the abdominal cavity, through the internal ring, *external* to the deep epigastric artery, passes along the inguinal canal in the oblique course of the spermatic cord (or round ligament in the female), and through the external ring to the scrotum, or the labium in the female.

Direct or *Internal Inguinal Hernia* escapes from the abdominal cavity at the point known as "Hesselbach's Triangle," *internal* to the deep epigastric artery, and emerging from the external abdominal ring afterwards takes the same course as the indirect variety.

The following are the coverings of inguinal hernia, oblique and direct, commeneing at the surface :—

OBLIQUE.

1. Skin.
2. Superficial fascia.
3. Inter-columnar faseia.

DIRECT.

1. Skin.
2. Superficial fascia.
3. Inter-eolumnar faseia.

OBLIQUE.

4. Cremaster muscle.

5. Fascia transversalis, or infundibuliform fascia.

6. Sub-serous cellular tissue.

7. Peritoneal sac.

DIRECT.

4. Conjoint tendons of internal oblique and transversalis muscles.

5. Fascia transversalis.

6. Sub-serous cellular tissue.

7. Peritoneal sac.

The diagnosis between oblique and direct inguinal hernia is not difficult in the early stage, but is much more so in ruptures of long standing. The oblique variety commences as a slight swelling at the internal abdominal ring, just above the centre of Poupart's ligament, and passes downwards and inwards through the inguinal canal, towards the scrotum. In the *direct* variety, the bowel escapes from the abdominal cavity immediately behind the external abdominal ring, and at once passes downwards and inwards to the scrotum. As a rule, the tumour is more globular in the direct; that in the oblique variety is not so large, but has a wider neck.

The *seat of stricture* in indirect inguinal hernia is usually at the internal abdominal ring; and in the direct variety where the hernia passes through the conjoined tendon.

II.—FEMORAL HERNIA.

This form of hernia escapes from the abdominal cavity through the crural ring, and descends vertically beneath Poupart's ligament, lying at first in the sheath of the femoral vessels immediately to the

inner side of the femoral vein. It then emerges through the saphenous opening, and, turning upwards abruptly, rests on the fascia lata, over Poupart's ligament, the long axis of the tumour being transverse and not vertical. The *coverings* commencing at the surface are—

1. Skin.
2. Superficial fascia.
3. Cribriform fascia.
4. Femoral sheath, or fascia propria.
5. Septum crurale.
6. Sub-serous cellular tissue.
7. Peritoneal sac.

The *seat of stricture* in femoral hernia is most frequently at the upper part of the crural canal at the ring, and is generally caused by the sharp border of Gimbernat's ligament. The margin of the conjoined tendon may, in some cases, cause constriction, and in others, the stricture is due to Poupart's ligament and a band of the deep crural arch. In other cases the stricture is found at the saphenous opening, and is caused by the falciform border.

LII.--UMBILICAL HERNIA.

This form of hernia, sometimes called *exomphalos* or *omphalocele*, occurs at the umbilical aperture, and is very common in infants, although it is not at all rare in adults. The infantile form is usually very small, and is due to yielding of the cicatricial tissue after separation of the umbilical cord, consequent upon persistent crying, cough, or improper application of linen bands around the lower part of the body. In

the adult it is most frequently met with in fat women, and those who have borne several children, although at times it is met with in men. The course of the rupture in this variety is straight through the abdominal wall. The *coverings* commencing at the surface are :—

1. Skin.
2. Superficial fascia.
3. Prolongation from tendinous margin of the aperture.
4. Fascia transversalis.
5. Hernial sac derived from the parietal peritoneum.

When *congenital*, the hernia is due to a dilatation of the umbilical cord and imperfect closure of the ventral plates. When strangulation takes place the stricture is caused by the firm margin of the umbilical ring. In the adult this form of hernia sometimes attains a large size ; nearly the whole of the intestines, and other abdominal viscera, in some cases finding their way out at the umbilical opening.

LIII.—TREATMENT OF HERNIA.

In all cases the rupture should, if possible, be reduced, and a well-fitting truss be worn, except when the patient is in bed. In children, the habitual use of the truss often effects a complete cure. In umbilical hernia in infants, a pad carefully fastened over the umbilical opening, and worn for some months, is generally sufficient to effect a cure. In bad and neglected cases a slight operation, consisting in the removal of a portion of the skin by means of a ligature, expedites

recovery, the pad being worn for some time after the operation.* In strangulated hernia, attempts at reduction should be made as early as possible, by means of taxis, that is, by careful manipulation, the pressure being directed towards the aperture from whence the bowel emerged. If taxis fails at first, a full dose of opium may be given, the patient placed in a warm bath, and the taxis again applied; or, chloroform should be administered and taxis used without employing force. A bladder of ice placed over the tumour for an hour or two sometimes assists the means employed for reduction. When it is found that taxis has no effect, as regards reducing the size of the tumour, no time should be lost in performing herniotomy, according to the principles laid down in surgical textbooks. In suitable cases, the radical cure of inguinal hernia may be effected by means of the operation suggested by Professor Wood, or by the injection of an irritating fluid into the tissues about the neck of the sac. In femoral hernia the operation for radical cure is less successful.

LIV.—HERPES PREPUTIALIS.

Definition.—An affection characterised by the appearance of a crop of herpetic vesicles around the corona of the glans penis, or upon the external or internal surface of the prepuce.

Symptoms.—Heat of the part and considerable irritation. The vesicles contain thin watery fluid and readily burst. Sometimes ulceration takes place, but, as a rule, if cleanliness be observed, the parts become dry and heal in a few days.

* The Author has seen this method practised with success.

Treatment.—Cleanliness, and the application of sulphate of zinc lotion, four grains to the ounce; or a weak solution of nitrate of silver, four or five grains to the ounce, may be used occasionally. A saline aperient should also be given.

[NOTE.—This affection is often mistaken for venereal disease.]

LV.—HORDEOLUM, OR STYE.

Definition.—A hard and painful swelling on the margin of the eyelid.

Causes.—These swellings arise from an inflamed condition of the ciliary follicle, due in most cases to defective nutrition, and always occur in weak and scrofulous persons, and generally in childhood.

Treatment.—Locally, hot fomentations and poultices, to promote suppuration, and as soon as pus has formed, the little tumour should be punctured. Such a condition points to the necessity of good diet and out-door exercise, and general constitutional treatment by means of ferruginous tonics and cod-liver oil.

LVI.—HOSPITAL GANGRENE, OR SLOUGHING PHAGEDÆNA.

Definition.—A condition characterised by rapidly spreading sloughing ulceration of wounded or injured parts, occurring in hospital or infirmity patients.

Causes.—Want of cleanliness in the treatment of suppurating wounds, overcrowding, and general disregard of sanitary laws, are invariably the exciting causes of this condition. Formerly this disease was very

common ; but of late years, since greater attention has been paid to hospital hygiene, it is almost unknown in this country.

Characters and Course.—As a rule, the first thing observed is a vesicle at or near the margin of the wound, or on the injured part. The base of the vesicle soon begins to ulcerate, turning into a greyish or in some cases black slough, which spreads rapidly over the whole surface of the wound, and attacks the adjacent tissues, which become œdematous and assume a dusky-red appearance. There is considerable pain and inflammatory action, and marked fœtor. In extreme cases the ulcerative process permits free hæmorrhage to occur,—typhoid symptoms supervene, and the patient dies exhausted. In favourable cases the ulcers do not spread, and the sloughs are thrown off, presenting a healthy surface.

Treatment.—Patients attacked with this affection must be separated from other patients and placed in a well-ventilated room or ward, through which a free current of air passes. Locally, antiseptics should be employed. All sloughs and putrescent matter must be removed by means of the scalpel, or scissors and forceps. To prevent the spread of the disease and induce healthy action, the free application of pure nitric acid is probably the best remedy. The application of pure bromine, chloride of zinc, and of the actual cautery are also recommended. Constitutional treatment is very important. Good light diet with a moderate quantity of stimulants should be given, and tonic medicines (iron, quinine, etc.). Opium or chloral may be given if there is much pain or sleeplessness.

LVII.—HYDROCELE.

Definition.—A collection of serous fluid in close connection with the testicle or spermatic cord.

Varieties.

- (a) *Vaginal Hydrocele*; when the fluid is contained in the tunica vaginalis of the scrotum.
- (b) *Congenital Hydrocele*; when in infants the fluid is contained in the tunica vaginalis of the scrotum, and a communication exists between the sac and the abdominal cavity in consequence of the tubular prolongation of the peritoncum remaining unobliterated.
- (c) *Encysted Hydrocele*; when the fluid is contained in a cyst projecting from the epididymis or testis, and not communicating with the tunica vaginalis.
- (d) *Hydrocele of the cord*; when the fluid is contained in a sac situated on some portion of the spermatic cord, either in or below the inguinal canal.

Causes.—Except in the congenital variety, the cause is generally obscure. Occasionally it is traced to a blow or strain, or to an attack of orchitis. Whatever the exciting cause may be, the secretion of fluid in vaginal hydrocele is due to some inflammatory affection of the serous membrane. In the congenital variety, whether of the cord or of the scrotum, the fluid gravitates into the part from the abdominal cavity, and as long as the communication remains open, it can be pressed back into the abdomen.

Diagnosis.—Vaginal hydrocele has to be distinguished from scrotal hernia, hæmatocele, and cystic disease of the testicle. Occasionally, hydrocele and

hernia co-exist, when the diagnosis is very difficult. The tumour in hydrocele is generally pyriform in shape, smooth in outline, fluctuates on palpation, is free from pain and tenderness, terminates (except in rare cases) at the external abdominal ring, cannot be reduced (except in the congenital variety), is translucent unless the fluid is thick, bloody, or opaque. Hydrocele may exist with enlargement of the testicle, when translucency may not be observed. The history of the case is important. In hydrocele, the swelling commences below in the scrotum, and ascends to the groin, whilst in hernia, the swelling first appears in the groin and upper part of the scrotum. In hydrocele, the testicle lies at the back of the scrotum with the fluid below and in front, whilst in hernia, the testicle lies at the lower part of scrotum below the hernial sac. In cystic disease of the testicle, the fluctuation is limited to one portion of the tumour, whilst in hydrocele it is present all over the swelling. The translucency of hydrocele is generally sufficient to distinguish it from hæmatocele, but in doubtful cases a puncture with a fine trocar will decide the point.

Treatment.—The treatment of vaginal hydrocele may be *curative* or *palliative*. The palliative treatment consists of simply tapping the hydrocele with a fine trocar and canula, and drawing off the fluid. In a few months, the sac will become refilled with fluid, and tapping must be repeated. Various methods have been recommended for the radical cure of hydrocele. The most simple, and the one generally adopted, is to draw off the fluid by tapping, and then inject, through the canula, a mixture of about equal quantities of tinct. iodine and water. Inflammation ensues, usually resulting in radical cure. Other fluids are sometimes

injected, as port-wine, solution of sulphate of zinc and warm water. When injecting the sac fails, the seton or free incision may be resorted to, but the cases are rare in which these are necessary. *Hydrocele of the cord* may be treated as vaginal hydrocele, but in this variety the seton will be found very successful. In *Congenital Hydrocele*, active measures are seldom necessary, the application of cooling lotions to the scrotum being generally sufficient to effect a cure. Occasionally it is necessary for the child to wear a truss for a time, in order to obliterate the communication between the scrotum and the abdominal cavity.

LVIII.—HYDROPS ARTICULI, OR, HYDRARTHROSIS.

Definition.—A swollen condition of a joint arising from excessive accumulation of fluid. Most common in the knee-joint, and is usually known as “dropsy of the joint.”

Causes.—Chronic synovitis resulting from injury, rheumatism or osteo-arthritis.

Treatment.—Absolute rest to the joint; application of back splint in case of knee-joint, blisters and counter-irritations by means of iodine and other liniments. Scott's dressing often answers well, as also does strapping the joint with mercurial plaster. Iodide of potassium and tonics to be given internally. In extreme cases the joint may be tapped by means of the aspirator, or as a last resource the joint may be laid open by a free incision on either side, and the fluid evacuated. Drainage tubes should then be inserted and retained for two or three weeks, or until

the synovial cavity has shrunk to about the normal size. This operation should be done under strict antiseptic precautions.

LIX.—IRITIS.

Definition.—Inflammation of the iris.

Varieties and Causes.—Three varieties of iritis are given, classified according to their causes.

- (a) *Simple iritis*, from irritation of foreign bodies in the conjunctival sac, or on the cornea; blows, friction of the cornea by granular lids or inverted eyelashes, or general debility after acute illness.
- (b) *Rheumatic iritis*, met with in persons who are the subjects of attacks of rheumatism and gout.
- (c) *Syphilitic iritis*, as met with in persons the subject of hereditary or acquired syphilis.

Characters and Symptoms.—This affection is characterised by great pain in the eye and intolerance of light (photophobia); a zone of pink or violet vessels forms around the cornea, the pupil becomes diminished in size, and sometimes irregular in shape, and loses its mobility, the iris changes its colour to brown or greyish green. The aqueous humour also assumes a muddy appearance. In bad cases, lymph is effused in the structure of the iris, the surface of which acquires a rusty or nodular appearance, and adhesions either between the iris and cornea, or between the iris and lens-capsule (synechiæ), take place. In rheumatic iritis, the patient is likely to have a frequent recurrence of the attack. In syphilitic iritis, the symptoms generally are more marked and

severe, and frequently the surface of the iris becomes dotted with minute nodular excrescences of a dirty yellow colour, called lymph nodules. The patient's history is important in the diagnosis of syphilitic iritis.

Results.—If proper and prompt treatment be adopted, perfect recovery generally takes place. In severe and neglected cases, the results may be atrophy of the iris, anterior or posterior synechiæ, closure of the pupil, or capsular cataract.

Treatment.—First remove the local cause if any be present, then endeavour to relieve the pain by belladonna fomentations and the administration of sedatives. The pupil to be kept dilated by means of solution of atropia. The patient should be kept in a darkened room, or wear a shade or dark goggles. If there is much pain, leeches should be applied to the temples. In severe cases, mercury with opium (2 grains of blue pill with $\frac{1}{4}$ grain of opium three times a day) should be given, care being taken not to proceed to salivation. In debilitated persons, iron and quinine with cod-liver oil are indicated; in rheumatic iritis, colchicum and iodide of potassium are valuable. If adhesions interfere with vision, or closure of pupil results from iritis, the performance of iridectomy is necessary.

LX — KELOID, OR, CHELOID.

Definition.—A hard smooth tumour, of a red or pinkish colour, usually growing from the surface of a cicatrix.

Charactors.—The keloid tumour first appears on the surface of the scar as a smooth hard nodule or

tubercle, at first of red or pinkish colour, but becoming paler as it increases in size. The cicatrices of burns are the most frequent seat of these growths. Sometimes cases are met with in which an indurated and tubercular condition of the skin and subcutaneous tissue occurs, not associated with a cicatrix. This is termed "true cheloid."

Treatment.—Should be left alone unless they grow to a large size, when excision is necessary, but the growth frequently returns after such operations.

LXI.—KERATITIS, OR, CORNEITIS.

Definition.—Inflammation of the cornea.

Varieties and Causes.—Five different forms of corneitis are generally recognised :—

- (a) *Simple*, arising from injury or the lodgment of foreign bodies on the surface of the cornea.
- (b) *Interstitial* or *Parenchymatous*, a more severe and chronic form arising from hereditary syphilis.
- (c) *Pustular* or *Phlyctenular*, characterised by the presence of small grey pustules on the surface of the cornea, and usually met with as a sequel of measles, scarlatina, or other acute disease, and almost invariably in children of a scrofulous diathesis.
- (d) *Keratitis Punctata*, a form sometimes met with in young adults, and characterised by the development of numerous light grey opaque spots on the surface of the cornea.

(e) *Suppurative Corneitis*, when the inflammation is of such a severe character that it proceeds to suppuration and sloughing of the tissues. Usually the result of a severe blow on the cornea, or the presence of foreign bodies, or may follow the operation for cataract.

Symptoms.—Severe pain of the affected eye and of the head, intolerance of light, haziness and increased vascularity of the cornea, both the vessels on the surface and those in the structure of the cornea being dilated and injected. In interstitial keratitis of the cornea, the inflammation is of a more severe character, and opaque spots soon form on the cornea, which sometimes cover its whole surface and run together, giving it a “ground glass” appearance.

Treatment.—Foreign bodies and sources of irritation to be removed, atropine drops to be applied to the surface of the cornea, or the eyes to be bathed with a lotion made with extract of belladonna (six to ten grains to the ounce). In suppurative corneitis, the lotion may be used warm, or decoction of poppy-heads used as a fomentation; in case of severe pain, leeches to be applied to the temples. Simple corneitis usually yields to local treatment, but the other forms require constitutional remedies. In interstitial keratitis, mercury must be given; and in other forms, steel and other tonics with cod-liver oil.

LXII.—LIPOMA.

Definition.—The technical name of the fatty tumour.

Pathology.—The lipoma, or fatty tumour, is identical in structure with healthy fatty tissue, but is usually

enclosed in a fibrous capsule, from which it receives its blood supply. Septa proceed from the capsule, which divide the tumour into lobules. The surface of the tumour is smooth and rounded. When examined under the microscope it is found to consist of large polygonal fat cells, crowded together in meshes of areolar tissue. In some cases, the growth is not encapsuled, but "continuous" or "diffused," as occasionally seen in the large double chin of adults. In these cases, the growth consists of small dense lobules of fat aggregated together. The most favourite seat of lipomata is the shoulder, thigh, and trunk.

Diagnosis.—Not difficult, unless situated deep among the muscular structures. When subcutaneous, they are lobulated and encysted, and not likely to be mistaken for cancer or any other growth.

Treatment.—Best left alone, unless the tumour is unsightly or is growing to a large size. It may then be removed easily with the knife. This applies to the encysted tumour only. The "continuous" or "diffused" lipoma should not be removed except under urgent circumstances, or in the case of children, when the tumour is of small size.

LXIII.—LIPOMA OF NOSE.

Definition.—An overgrowth or hypertrophy of the sebaceous follicles, skin, and subcutaneous tissue, at the tip of the nose.

Characters.—The enlargement may be general at the tip and alæ of the nose, or may be limited only to a portion of the nose. In the latter case, the swelling or swellings are pendulous and lobulated. The growth has usually a purplish hue, from congestion of the

capillaries and enlargement of the venous radicles. The disease is of slow growth : but in some cases the growth reaches a great size, and is then very unsightly.

Treatment.—If any treatment is necessary or desired, nothing but removal with the knife can be suggested. There is no difficulty or danger about the operation ; but the dissection should be proceeded with very carefully, and the cartilages must not on any account be interfered with.

LXIV.—LUPUS VULGARIS.

Definition.—This is a disease which usually attacks the skin of the nose or cheek, characterised by irregular nodular growths, which most commonly proceed to ulceration.

Varieties.—Various names have been given to this disease, according to the stage in which it is when under observation or the local appearances it presents.

- (a) *Lupus non-exedens*, when the disease is simply nodular without ulceration.
- (b) *Lupus exedens*, when there is distinct ulceration of the skin and subcutaneous tissues.
- (c) *Lupus hypertrophicus* or *tuberculatus*, when the nodules appear like projecting tubercles.
- (d) *Lupus serpiginosus*, when the ulcerated patches are irregular in shape, arising from running together of two or more ulcerating patches.
- (e) *Lupus disseminatus*, when the nodules are small and isolated or scattered over a considerable surface.
- (f) *Lupus verrucosus*, when small warty growths develop on the nodules.

Characters, etc.—Commences as a small, dull red hemispherical papule, which, joining with other similar papules, forms a tubercle, having at first a smooth surface, but ulceration soon commences, and an unsightly sore is formed. Unless treated, the disease gradually spreads, destroying the skin and deeper tissues, sometimes extending to the cavities of the mouth and nares, and exposing the bones, giving rise to great deformity.

Treatment.—This should be both constitutional and local. Cod-liver oil, iron and quinine, with small doses of arsenic, are the best remedies. Locally, caustics should be freely applied, the best being potassa fusa, or chloride of zinc, mixed with an equal quantity of flour, nitric and carbolic acids, or the Vienna paste (equal parts of quicklime and potassa cum calce, with a little spirits of wine). But the most effective local treatments are free scarification, scraping with the blunt spoon, or the galvano-cautery, if the patient will consent to its use, by which all the diseased tissues can be, in most cases, destroyed at one sitting.

LXV.—MEDULLARY CANCER (ENCEPHALOID, OR, SOFT CANCER).

Definition.—A form of cancer characterised by softness, rapidity of growth, and, when fully developed, consisting chiefly of brain-like material.

Situation.—The tissues most frequently attacked are the periosteum and bone—more especially the bones of the head and face—the eye, tonsil, testis, ovary, uterus, and lymphatic glands.

Characters.—Usually commences as a soft, smooth, and deep-seated swelling, forming a tumour which is elastic, and often feels as if it contained fluid. If

punctured, blood or a little creamy juice only escapes, which, if examined under the microscope, is seen to consist chiefly of spheroidal cells and nuclei. The surface of the swelling is generally smooth and uniform, but at times is nodular and lobulated. The skin over the swelling is usually traversed by numerous large and dilated veins. As the tumour grows, the skin becomes implicated, and often the cancerous mass bursts through the skin in the form of large fungoid protrusions, the surface of which bleeds freely. When the growth presents this appearance, it is termed "*fungus hæmatodes*."

Pathology.—The material composing this form of cancer, to the naked eye, presents a brain-like appearance, very like foetal brain, or adult brain substance partially decomposed and crushed. Many specimens are softer than brain substance. In others, the bulk of the growth is pulpy, shreddy, or spongy, like a placenta, with fine soft filaments. When pressed or scraped, the growth yields abundant "cancer juice," which, under the microscope, is found to consist chiefly of spheroidal cells, loosely arranged, suspended in the juices of the growth, or enclosed within its delicate connective tissue.

Treatment.—Same as for cancer generally. When situated in an organ or part which admits of removal, the disease should be excised as early as possible. When this cannot be done, the disease must be attacked with caustic applications, such as strong acids, caustic potash, or chloride of zinc. By these agents, the disease may at times be totally destroyed. When removal or destruction of the growth cannot be attempted, the patient's sufferings may be relieved by applications of belladonna or opium, and the internal administration of sedatives.

LXVI.—MELANOSIS, MELANOID, OR, MELANOTIC CANCER.

Definition.—A form of medullary cancer characterised by the presence of pigmentary matter which gives the growth a black appearance, and hence is known as “black cancer.”

Situation.—Always grows from a part which naturally contains pigment, such as the choroid coat of the eye or the skin. The commonest seat of origin is a cutaneous mole.

Characters.—Closely resembles medullary cancer in its general characters, but when originating in the skin, often presents the peculiarity of rapid multiplication. In some cases, the skin and subcutaneous tissue of the parts attacked rapidly become studded with melanoid growths of all sizes and shades of colour.

Treatment.—Same as Medullary Cancer.

LXVII.—MENINGOCELE.

Definition.—An abnormal condition of the head, in which the membranes of the brain protrude through the skull.

Causes.—Occurs in infants as a congenital affection, and arises from some deficiency in the bones of the skull, the most frequent seat of deficiency being the occipital bone.

Treatment.—As a rule, this condition is best left to nature. As the bones ossify, the opening through which the tumour protrudes may close, the tumour being left external and wholly separated from the intracranial contents. When this occurs, the resulting cyst may be excised if small, or injected with iodine if of large size.

LXVIII.—MOLLITIES OSTIUM. (MALA-COSTEON, OSTEOMALACIA).

Definition.—A general morbid condition of the system, characterised by a soft and flexible condition of the bones.

Causes.—The pathological cause of this disease is unknown, but it is chiefly met with in persons who have been subject to prolonged depressing influences. It is a disease of adult life (in this respect differing from rickets), and is chiefly met with in women, repeated pregnancy being apparently a predisposing cause. About 90 per cent of the cases occur in women.

Characters and Symptoms.—The earliest symptom of the disease is pain of an obscure character, simulating rheumatism very closely. The pain is deep-seated, increased on pressure or by motion, sometimes wandering, at others fixed to a particular spot, but spreading subsequently to other parts. In addition to the pain, in the early stage of the disease, the patient complains of lassitude and general feeling of weakness. Subsequently, symptoms associated with the softening and absorption of the bones appear, which give rise to deformity of the spine or pelvis, and distortions or fractures of the bones generally, arising from flexibility and fragility. The urine in these cases is highly charged with phosphates and lime salts.

Pathological Changes.—The pathological changes in the bones are very marked. At first, there is highly increased vascularity; the bony matter then becomes more opaque and less uniform than natural, and sometimes irregularly granular. The laminae of the Haversian system appear to be fused together, and the Haver-

sian canals surrounded by a ring of animal matter, ultimately becoming disintegrated and absorbed. Thus the Haversian system becomes destroyed, and the bone presents a hollowed-out porous appearance, the spaces in the interior of the bone being filled with a peculiar gelatinous and oily substance.

Prognosis.—Bad. Death generally takes place from exhaustion, but rarely recovery is said to take place.

Treatment.—The general health to be supported by good food, warmth and rest. Cod-liver oil should be given, but the administration of lime salts is said to do more harm than good.

LXIX.—MYXŒDEMA.

Definition.—An obscure fatal disease characterised by œdema of the subcutaneous tissues, arising from an accumulation of mucus and extreme anæmia.

Causes.—This condition is believed to be due to atrophy of the thyroid gland, or some disease which destroys its physiological functions, the chief of which appear to be the control of the mucinoid substances in the tissues, and the manufacture of blood corpuscles. It also in many cases follows extirpation of the gland for goitre.

Characters and Symptoms.—The most noticeable symptom is the œdema-like swelling of the subcutaneous tissues, which is especially noticeable in the eyelids and lips. There is a large increase of leucocytes in the blood, and loss of red corpuscles. The superficial bloodvessels on the face appear much dilated, the hair falls out rapidly, the tone of voice

alters, becoming very thick, the patient becomes very lethargic, and ultimately almost imbecile.

Treatment.—Little can be done medicinally for this condition, as it is impossible to restore the function of the thyroid gland.

LXX.—NÆVUS, TELANGEIECTASIS, OR, ANGEIOMA.

Definition.—A dilated condition of the capillary bloodvessels, usually congenital, giving rise, when cutaneous, to red, blue, or purple colouration of the skin, and commonly known as “mother-marks.”

Varieties.—Nævi may be divided into different classes, either as regards the situation of the diseased capillaries, or according as the *arterial* or *venous* capillaries are most affected, thus:—

- (a) *Cutaneous.* When the capillaries of the cutaneous tissue only are involved.
- (b) *Subcutaneous.* When the capillaries of the subcutaneous cellular tissue only are involved.
- (c) *Mixed.* When the capillaries of both tissues are involved.
- (d) *Arterial.* When the arterial capillaries are chiefly affected.
- (e) *Venous.* When the venous capillaries are chiefly affected.

Cutaneous nævi, which contain pigmentary cells in abundance, form a distinct class, and are called “moles.”

Characters.—These differ according to the variety of the nævus. In the cutaneous variety, which is the most common, the skin at the affected part is

discoloured, the shade varying in different cases from a bright red to purple or blue. They most commonly occur on the head or face, and vary in size from a mere point to the circumference of a crown, and in some cases, such as the "port-wine mark" form of *nævus*, an extensive surface becomes affected. The surface is usually flattened, but raised somewhat above the surrounding skin. In the subcutaneous variety, the skin is not discoloured, but the dilated vessels can be felt and often seen beneath the skin. The vessels are sometimes much dilated, forming a distinct tumour, which is soft, compressible, and painless, and sometimes is found distinctly to pulsate. When pulsation can be felt, it shows that the arterial capillaries are chiefly affected. The arterial *nævus* is of a brighter red than the venous. On exertion, crying, or any excitement, the vascular distension is increased. Some *nævi* increase in size rapidly if left alone, others remain stationary, and, occasionally, spontaneous cure takes place, preceded by degenerative changes. Occasionally they ulcerate or slough, or undergo cystic degeneration. An arterial *nævus*—when large, with free anastomosis of vessels, is called an "aneurism by anastomosis." (See Aid XII. Part I.). Pigmentary *nævi*, or "moles," are less vascular than the other forms, and are less rapid in growth. They are not liable to ulcerate, slough, or undergo cystic degeneration, but are said to have a tendency to develop into cancerous disease of the melanotic variety.

Treatment.—If of small size and in such a situation as not to be unsightly or an inconvenience, nothing need be done, as spontaneous cure will, probably, take place after a time. If it grows rapidly,

or is unsightly, or causes inconvenience, operative interference is necessary. In the cutaneous variety, one or two applications of strong nitric acid or potassa fusa suffice to cure. The hot iron and galvanic cautery are very effective in the cutaneous and mixed varieties. In the subcutaneous form, strangulation of the tumour by means of ligature, applied subcutaneously, is the best treatment. If encapsuled, complete excision may be performed. Treatment by injection of perchloride of iron, tannin, and carbolic acid has been recommended, but this is very dangerous, as embolism is liable to occur, and some rapidly fatal cases have been recorded. It should, therefore, not be attempted unless it is possible to put a temporary ligature around the nævus, which should not be removed for at least a quarter of an hour after the injection. In diffused nævi, the use of the seton is recommended. Large nævi of this kind may be cured by the introduction of several setons steeped in solution of perchloride of iron. Vaccination has been recommended for the cure of small nævi, but is seldom attended with satisfactory results. In the "port-wine mark" variety, linear scarification has been recommended ; but as yet, the results of surgical treatment of this form of the affection have not been very encouraging.

LXXI.—NECROSIS.

Definition.—Death of bone in mass.

Causes.—Stoppage of the blood supply to the bone from acute or chronic inflammation, the result of injury, frost-bite, or severe burns, or arising from constitutional causes, such as scrofula, syphilis, ex-

cessive use of mercury, and generally debility from fever or scrofula. Lucifer match makers are subject to necrosis of the jawbones from the effects of the phosphorous fumes.

Symptoms.—Necrosis being most frequently the result of inflammatory conditions, the first symptoms are those of acute local inflammation, viz., pain, tenderness, œdema, followed by suppuration. The local inflammation having destroyed the vitality of the bone, the portion of dead bone acts as a foreign body, and keeps up inflammatory action until it has entirely separated from the healthy bone, and been removed. The portion of bone destroyed depends upon the extent of the inflammation; at times only a thin scale of bone exfoliates, at others a large portion, or even the whole, of the shaft of a long bone is destroyed. Suppuration always accompanies necrosis, and continues until the whole of the dead bone has been thrown off or removed.

Treatment.—Medicinal treatment must vary with the condition of the patient, according as to whether scrofula, syphilis, or debility, has to be combated. In these cases, diet should be generous, and absolute rest enjoined. Locally, the treatment must be expectant until the work of separation of the dead bone is completed, and may consist of poulticing, application of stimulating lotions, or carbolic oil, as may be most soothing to the patient. When the dead bone is loose, the sooner it is removed the better, although this is often a matter of some difficulty, as it becomes embedded in newly-formed bone. When the necrosis is extensive and approaches near the joint, amputation is sometimes necessary.

LXXII.—NODES.

Definition.—A circumscribed swelling of an inflammatory character, situated on the surface of a bone, and affecting the periosteum and adjacent tissues.

Causes.—Although a node may result from periositis arising from injury or rheumatism, by far the most frequent cause is syphilis.

Symptoms and Course.—Local pain and tenderness are the primary symptoms of the formation of a node, followed by swelling, which slowly and gradually increases (unless checked by treatment). After a time the tissues covering in the node become oedematous, the skin becomes red, and, probably, fluctuation may be detected, showing that suppuration has taken place. After the abscess bursts, or is opened, it is usually found that the bone beneath has become necrosed.

Treatment.—Repeated applications of tincture of iodine in the early and chronic stage; if painful and inflamed, fomentations and poultices. Internal treatment is most important, and iodide of potassium the most useful drug. As a rule, it is unwise to open a suppurating node whilst any hope of absorption remains. Other treatment, as in syphilis, when there is a history of this disease, and if the bone is necrosed it must be treated accordingly.

LXXIII.—NOMA.

Definition.—A condition occasionally met with in badly-fed and neglected children, characterised by sloughing phagedæna of the cheek and the vulva in

females. When it attacks the cheek it is termed "cancerum oris."

✶ **Causes.**—Extreme debility, privation, dirty habits.

Symptoms.—Commences with swelling and inflammation of the superficial tissues, which soon ulcerate, the ulceration rapidly spreading in a gangrenous manner, in spite of treatment. The constitutional symptoms are sometimes severe, and there is always great prostration.

Treatment.—Tonics, liberal nourishing diet, wine, etc. Locally, carbolic acid or lead lotion; or if the ulceration is spreading, strong carbolic acid, nitric acid, nitrate of silver, or the galvanic cauterly.

LXXIV.—ONYCHIA.

Definition.—An inflammatory disease of the matrix of the nail, usually accompanied by ulceration.

Varieties.—Two, simple and malignant or specific.

Causes.—Injuries to the nail and parts adjacent, such as a prick or squeeze in persons out of health. Commonly met with in scrofulous or badly-fed children. The malignant variety usually occurs in syphilitic or scrofulous persons.

Symptoms.—Simple onychia commences as a red, painful swelling at the matrix of the nail; pus soon forms, which finds its way to the surface; the nail becomes loose and shrivelled, and is gradually thrown off, being replaced by a new but generally imperfect one. The malignant variety commences in the same manner, but the parts around and underneath the nail ulcerate, discharging a sanious and often foetid fluid; the nail turns black, becomes loose, and falls off, or turns up at the edges, remaining partially attached.

After a time large flabby granulations spring up on the ulcerated surface, and the end of the finger or toe becomes enlarged and "clubbed." In severe cases, the ulceration may extend so deeply as to expose the terminal phalanx.

Treatment.—In simple cases, the local application of poultices or water dressings, with the internal exhibition of tonics, and well-regulated diet, are sufficient to effect a cure. In obstinate cases, the nail should be removed and some stimulating lotion applied. In the malignant variety, after the nail has been removed, the free application of lunar caustic is advisable, the parts being afterwards dressed with black wash or other mercurial lotion. The application of powdered nitrate of lead to the ulcerated surfaces is highly recommended, and powdered iodoform has also been used successfully. In cases having a syphilitic origin the usual constitutional treatment must be adopted.

LXXV.—OPHTHALMIA.

Definition.—Inflammation of the conjunctiva.

Varieties :—

- (a) Simple ophthalmia, sometimes called conjunctivitis.
- (b) Catarrhal ophthalmia.
- (c) Purulent ophthalmia.
- (d) Gonorrhœal ophthalmia.
- (e) Phlyctenular ophthalmia.
- (f) Granular ophthalmia.
- (g) Diphtheritic ophthalmia.
- (h) Chronic ophthalmia.

Causes.—Cold, exposure to draughts, irritation of foreign bodies in the eye, injuries, contagion, inoculation with purulent discharge of gonorrhœa, scrofula, neglect, etc.

Symptoms.—These vary according to variety of the affection.

In *simple ophthalmia* the ocular and palpebral conjunctivæ, but chiefly the former, are red, and the patient complains of some pain and pricking sensation as if there were something between the eye-ball and the lids. There is intolerance of light and a slightly increased secretion of tears.

In the *catarrhal* variety the conjunctivæ are more inflamed than in the simple variety, and are more or less swollen—sometimes much swollen (*Chemosis*)—and there is a yellowish discharge. Occasionally, there are small extravasations of blood in the ocular conjunctiva.

In *purulent ophthalmia* the symptoms resemble those of the catarrhal form, but they are more severe, and the discharge of pus, which is very thick and yellow, is much more copious. When purulent ophthalmia occurs in newly-born infants, as often happens, it is called *ophthalmia neonatorum*. In bad cases of pustular ophthalmia, sloughing of the cornea often takes place.

Gonorrhœal ophthalmia is a form of purulent ophthalmia arising from direct inoculation with the pus discharged in gonorrhœa, and is very severe in character. Sloughing of the cornea is more likely to occur in this form than in the non-specific forms of purulent ophthalmia.

Phlyctenular ophthalmia is very commonly met with in scrofulous children, and is characterised by irregular

vascularity of the ocular conjunctiva, and the centre of each patch is raised, forming a minute pustule, and a number of these pustules form around the margin of the cornea. There is much lachrymation and very little secretion of pus, and in most cases, great intolerance of light (photophobia).

Granular ophthalmia (or trachoma) is met with in the poor and badly-nourished, and is characterised by the formation of little granular semitranslucent bodies on the surface of the palpebral conjunctiva. These cause much irritation of the surface of the eye, and in cases of long-standing the constant friction of the rough surfaces of the lids causes an opaque and vascular condition of the cornea, known as *pannus*.

Diphtheritic ophthalmia is very rare. It is characterised by solid infiltration of the conjunctiva, and frequently the formation of diphtheritic membrane on the surface of the eye which, when the cornea is affected, sometimes destroys the sight.

Chronic ophthalmia usually results from one of the acute forms of the disease when neglected or badly treated. The conjunctivæ are reddened and slightly thickened, as also are the edges of the eye-lids.

Treatment.—Simply acute ophthalmia generally gets well in a few days if the eyes are kept shaded, and a mild astringent lotion (sulphate of zinc or alum, two or three grains to the ounce), be dropped into the affected eye, or eyes, frequently. Foreign bodies in the eye, and all sources of irritation to be removed. Warm fomentations of poppy-heads, or belladonna leaves, are very useful if there is much pain. The eye-lids to be smeared at bed-time with some soothing ointment, such as the diluted nitrate of mercury ointment. Saline aperients to be given, if necessary, and

the general health to be attended to. The treatment above indicated applies generally to all forms of ophthalmia, but some of the special forms require special treatment. Thus, in phlyctenular ophthalmia, a little calomel should be dusted into the eye, or a small quantity of yellow oxide of mercury (16 grains to the ounce), be applied to the inner surface of the eye-lids daily. In purulent ophthalmia, frequent cleansing and attention, with astringent lotions, are necessary. As the swelling of the eye-lids often prevents the application of the lotion, it should be used with a small syringe every half-hour or hour. If the ordinary zinc or alum lotion fails, the surgeon should himself use a lotion of nitrate of silver containing about three grains to the ounce. The same local treatment applies to gonorrhœal ophthalmia. If only one eye is affected, the other should be most carefully protected by covering it with a pad of dry boracic wool and sealing its edges with collodion. The pad to be removed once a day. In granular ophthalmia, the object of treatment is to destroy the granulations, which may be accomplished by the persistent daily use of solution of sulphate of copper, or the careful application of sulphate of copper or nitrate of silver in the solid form. Diphtheritic ophthalmia is best treated by poppy-head or belladonna fomentations.

LXXVI. — ORCHITIS, EPIDIDYMITIS, AND TESTITIS.

Definition.—Under the term *orchitis* are generally included all inflammatory conditions of the structures within the scrotum ; but strictly speaking, it should be used when the testicle only is affected. When, as often occurs, the epididymis only is inflamed, the term

epididymitis should be used, whilst the term *testitis* is used when both the testicle and epididymis are affected.

Varieties.—There are two chief varieties of orchitis, acute and chronic, but some authors make a further classification according to the cause of the disease, as *syphilitic*, *tubercular*, and *gouty* orchitis.

Causes.—Injuries, gonorrhœa, parotiditis, syphilis, tubercle, and gout, the three last named causes usually giving rise to the chronic form of the disease.

Symptoms.—

(a) *Acute* (including *epididymitis*). There is considerable local pain and exquisite tenderness, accompanied by a feeling of heat and swelling. In epididymitis, the swelling and tenderness are confined to the seminal duct, at the upper and back part of the testicle; and this is the usual condition when the inflammation is a consequence of gonorrhœa, although occasionally the inflammation proceeds by extension to the testicle. In all cases, there are also severe pains of the back, loins, and perineum, and often considerable constitutional disturbance, with fever, nausea, and vomiting.

(b) *Chronic*. The chief symptom is swelling, which comes on in a slow insidious manner, giving rise to but little pain or tenderness. When there is pain it is of a dull, aching character. In most cases the swelling is confined to the body of the testis, which becomes very hard, and very considerable pressure can be borne without causing much pain.

Complications and Sequelæ.—When early and proper treatment is adopted, acute orchitis and epididymitis should terminate in resolution, leaving the organ intact ; but in rare cases the inflammation proceeds to suppuration, and even sloughing. Both in the acute and chronic forms, effusion of fluid in the tunica vaginalis often takes place, giving rise to a hydrocele, but the condition disappears when the original disease is cured. In some cases obstruction of the seminal duct takes place, and occasionally, more especially after chronic orchitis, the seminiferous tubuli become destroyed, and atrophy of the gland follows.

Treatment.—In the acute form, rest in bed should be insisted upon. Locally, hot fomentations generally afford much relief, although in some cases cold lead lotion answers better. If these fail, leeches should be applied to the inflamed scrotum, or local venesection may be performed with the lancet. Saline aperients should be given, and full doses of opium if the pain is very severe, with absolute rest. Acute orchitis generally gets well in about ten days, but in some cases the disease assumes a chronic form. In chronic orchitis, if arising from syphilis, the chief attention must be directed to constitutional treatment, either by small doses of mercury or full doses of iodide of potassium. Locally, inunction of mercurial ointment should be performed daily, or the testicle firmly strapped. In all cases strapping or firm pressure is advisable to promote absorption. In cachectic patients iron and other tonics should be given. If suppuration takes place early evacuation of the pus by incision is good practice.

LXXVII.—OSTEO-ARTHRITIS, OR RHEUMATIC ARTHRITIS.

Definition.—A chronic disease of the articular ends of bones, accompanied by considerable enlargement, usually met with in elderly or middle-aged persons. Although very commonly called chronic rheumatic arthritis, the disease is now generally admitted to be altogether distinct from rheumatism.

Symptoms.—The earliest symptoms are pain and stiffness of the affected joint, the hip and shoulder-joints being most frequently attacked. The pain is worse at night, and is aggravated in damp weather, in this point resembling rheumatism. On moving the joint, the ends of the bones give rise to a crackling sensation. Later on the joint becomes thickened, and the end of the bones considerably enlarged by bony out-growths. In some cases, effusion takes place in the joint, and in extreme cases, through relaxation of the ligaments and filling up of the joint cavity with new bony tissue, actual dislocation takes place.

Pathology.—At first the synovial fluid in the joint becomes lessened, in some cases disappearing entirely. This gives rise to great stiffness of the joint. The inter-articular fibro-cartilage then undergoes fibrous degeneration, and if the joint is much used it disappears altogether, the ends of the bones becoming eburnated where they rub against each other. In extreme cases, the indurated end of one bone grinds away the end of its contiguous bone to a considerable extent. The ends of the bone become enlarged and flattened, and new plates of bone develop within the

synovial sac around the margins of the articular facets, and in connection with the ligaments and synovial membrane. In the hip-joint, the head of the bone flattens, the neck shortens, and the cavity of the acetabulum almost disappears. Around the head of the femur and the margin of the now almost obliterated acetabulum, irregular bony out-growths form. Similar changes take place in the shoulder-joint when it is the seat of disease. If the knee-joint is attacked, one or both condyles become elongated and enlarged, and the head of the tibia flattened; the patella also becomes enlarged, and in some cases, considerable effusion takes place into the joint.

Treatment.—The chief indications of treatment are to relieve pain, and maintain the general health of the patient. For the former, the iodide and bromide of potassium are recommended, although, in bad cases, opiates will be found necessary. Warm fomentations are useful, and considerable benefit may be derived from a course of warm mineral baths. The patient should be encouraged to use the joint in the early stage of the disease, to prevent, as far as possible, stiffness. In advanced cases, and where there is effusion in the joint, rest is beneficial, and the use of some mechanical appliance to encase the joint may be called for.

LXXVIII.—OSTEITIS, OSTEO-MYELITIS OR ENDOSTEITIS, AND PERIOSTITIS.

Definition.—These terms are used to denote an inflammatory condition of bone and its membranes. The term *osteitis* is used when the inflammation pro-

cesses are chiefly confined to the substance of true bone. *Osteo-myelitis*, and *endosteitis* are synonymous terms, and are used when the inflammation originates either in the internal membrane—endosteum, or in the marrow and are chiefly confined to these tissues. The term *periostitis* is used when the disease originates in, and is chiefly confined to the periosteum or outer covering of the bone.

Varieties and Causes.—Inflammation of bone may be *acute* or *chronic*, and is generally the result of injury or exposure. Among constitutional causes, scrofula and syphilis are the most frequent. It may also occur as a sequel of fevers or other long exhausting illnesses.

Symptoms.—In the acute form, there is intense local pain and tenderness, accompanied by general constitutional disturbance, feverishness, sleeplessness, and loss of appetite. When the disease commences in the shaft of a long bone or its endosteum there is not much local swelling, and at first, the tenderness is less marked, but after a few days these symptoms develop together with redness and œdema. When the disease commences in the periosteum, extreme tenderness is an early symptom, closely followed by swelling and redness of the skin. Any bone is liable to inflammation, but the long bones are most frequently attacked, especially those of the lower extremity. When the articular ends of bones are the seat of disease, the symptoms closely resemble those of acute rheumatism. In the *chronic* form, the symptoms are similar to, but much less severe than in, the acute variety, and there is but little constitutional disturbance. The following will assist in the differential diagnosis of endostitis and periostitis :

ENDOSTITIS, OR, OSTITIS.

Pain diffused through the whole bone.

Swelling diffused, giving rise to an appearance of general enlargement of the bone.

Redness and swelling generally a late symptom.

Tenderness to the touch absent in the early stage.

Constitutional disturbance much more severe in the early stage.

PERIOSTITIS.

Pain limited to the actual seat of the inflammation.

Swelling confined to a particular surface of the bone, and generally nodular. If syphilitic in origin, the nodes are often multiple.

Redness and swelling manifest almost from the commencement.

Tenderness to the touch very marked from the commencement.

Constitutional disturbance less rapid in development.

Sequelæ and Terminations.—In favourable cases of the acute form, and more frequently in chronic cases, when early and proper treatment has been adopted, the inflammatory symptoms subside, and cure results; but in the majority of acute cases, supuration follows inflammation, with destruction of the bone by necrosis or caries. Local abscess in the bone as a result of inflammation is far from uncommon, and occurs most frequently in the cancellous structure of the articular ends of the bone. The abscess may burst into the joint cavity, and cause entire destruction of the joint.

Treatment.—In all acute cases, entire rest must be enjoined, and hot fomentations or poultices applied locally. In acute periostitis, a free incision to the bone should be made as soon as a tense and reddened condition of the skin shows that effusion is taking place. The graver results of the disease may in this manner be at times prevented. Leeches may sometimes be used with great benefit. Constitutional

treatment is important, and must vary according to the nature of the case. If scrofulous, give the patient steel and cod-liver oil, or other tonics and nutritious diet; if syphilitic, give iodide of potassium in full doses. In case of abscess in the bone, the pus should be evacuated either by using the trephine or puncturing the bone with a drill. For treatment of necrosis, *vide* Aid LXXI., p. 33.

LXXIX.—OSTEO-SARCOMA.

Definition.—A tumour originating in bone, or more commonly in the periosteum, the new growth consisting of fibrous tissue and bone-elements in varying proportions.

Causes.—Generally obscure.

Treatment.—Excision when the tumour is circumscribed; if of large size and involving a considerable extent of the bone, amputation may be necessary.

LXXX.—OSTEO-CHONDROMA.

Definition.—A tumour originating in bone or the periosteum, the new growth consisting of cartilage and bone elements in varying proportions.

Causes.—Generally obscure.

Treatment.—Same as in osteo-sarcoma.

LXXXI.—OTORRHŒA.

Definition.—A disease of the ear in which the most prominent and persistent symptom is the discharge of purulent or muco-purulent fluid from the external meatus.

Causes.—Acute or chronic inflammation of the external auditory canal, disease of the middle ear, polypus, extension of exanthematous diseases to the meatus, presence of fungi, etc. It is mostly met with in weak strumous children, and is a frequent sequel of measles and scarlet fever.

Treatment.—In the acute stage, fomentations are useful locally, and saline aperients to be given internally. If fomentations fail, leeches or a blister behind the ear should be applied. In chronic cases, the ear should be carefully syringed daily with warm water, or weak astringent lotion such as alum or tannic acid, but if the tympanum is perforated, syringing may do more harm than good by forcing the discharges into the inner parts of the ear. If otorrhœa continues for a long period, the hearing almost always becomes impaired. Cases of otorrhœa should be carefully watched, as the disease may result in meningitis or abscess of the brain, and death ensue. The general health should be attended to. Cod-liver oil and steel often do much good, especially when the patient is scrofulous or suffering from debility, the result of scarlet fever, measles, or similar disease.

LXXXII.—OZÆNA.

Definition.—A term used to designate a numerous class of cases of disease of the nasal cavities, in which the most prominent symptom is a foetid odour from the nostrils, either with or without an offensive discharge of pus or other fluid.

Causes.—Ulceration of the mucous membrane or diseased bones, whether arising from syphilis, scrofula, injury, or other cause. Decomposition of retained

secretions is a frequent cause of ozaena, but occasionally the cause cannot be ascertained. It is usually associated with a low condition of the system.

Symptoms.—These vary according to the cause. Generally the patient complains of impaired sense of smell and a feeling of obstruction in the nostrils. The mucous membrane is found, on examination with a speculum, to be congested and somewhat thickened, and perhaps ulcerated.

Treatment.—Attend to the general health either by giving steel, quinine, and cod-liver oil, or anti-syphilitic remedies if these are indicated. Locally, warm water to be used with a syringe very freely, followed by the use of lotions, containing permanganate of potash, sulphate of zinc, chloride of zinc, carbolic acid, or nitrate of silver. Ulcerated surfaces should be treated with caustic, and if any loose pieces of dead bone can be detected they should be removed.

LXXXIII.—PAROTITIS, OR, MUMPS.

Definition.—An acute inflammatory condition of one or both parotid glands, believed to be infectious, frequently occurring as an epidemic, and most common in young persons.

Causes.—Generally obscure, unless traced to infection. Occasionally arises through extension of inflammation from neighbouring parts, or as the result of cold. The suppurative inflammation of the parotid and adjacent glands, which at times occurs as a sequel of scarlet fever, must not be mistaken for this disease.

Symptoms.—After an incubation stage of from fourteen to twenty-one days, a feverish condition sets

in, followed by swelling and pain in the affected gland or glands. The swelling increases gradually to a considerable size, is elastic to the touch, and causes much disfigurement. Sometimes the skin over the swelling becomes reddened, but is generally unaltered. Profuse salivation may occur, and occasionally the patient suffers from temporary deafness. The swelling begins to subside in about five or six days, and disappears entirely in two or three days more. In severe cases, the gland remains hard and somewhat swollen for a considerable time, and rarely abscesses form in the gland. A peculiar feature in this disease is the tendency to *metastasis*, that is, a sudden disappearance of the inflammatory symptoms from one part and appearance in another. In males, the testicle is the part most frequently attacked when metastasis takes place, and in females, the ovary, or mammary gland.

Treatment.—Gentle saline aperients, careful nursing, and nourishing liquid diet are generally sufficient to effect a cure. Locally, the parts may be fomented. If suppuration of the parotid takes place, it must be treated in the usual manner. If the gland remains hard and swollen after the subsidence of the acute symptoms, friction with oil or stimulating liniments should be employed, or iodine painted over the surface.

LXXXIV.—PARAPHIMOSIS.

Definition.—The term used to denote that condition which exists when a contracted prepuce has been drawn back over the glans, and cannot, without difficulty, be replaced.

Treatment.—The prepuce is to be restored to its natural situation as early as possible. When there is not much œdema, this may be effected without any cutting operation, but frequently the œdema and swelling are so great that it is necessary to divide the constricting preputial orifice at one or more points before reduction can be effected. To effect reduction, without cutting, the parts having been well oiled, the surgeon should hold the penis behind the constriction, between the index and middle fingers of *both* hands, and steadily endeavour to pull the prepuce forwards, at the same time pressing the glans backwards with the thumbs. After reduction, the application of lead lotion is sometimes necessary.

LXXXV.—PHIMOSIS.

Definition.—The term used to denote a long and contracted condition of the prepuce, which prevents the foreskin being drawn back over the penis.

Causes.—Usually this condition is congenital, but occasionally it arises from inflammation and contraction of the preputial orifice, or when the seat of chancre or other venereal affection.

Treatment.—In congenital cases, when the contraction is not excessive, the daily retraction of the prepuce over the glans, and subsequent replacement may suffice to effect a cure, but generally it is found in all cases that circumcision is the only satisfactory method of treatment. In some cases, when the foreskin is not very long, the “slitting” operation may be preferable to circumcision. This consists in simply passing a director into the orifice, between the glans and the prepuce, and dividing the latter with a

bistoury or scissors so that the glans is freely exposed. The flaps are then turned backwards, and the outer edges of mucous membrane stitched to the skin.

LXXXVI.—PHLEBITIS.

Definition.—Inflammation of a vein.

Varieties.—Plastic or circumscribed, sometimes called *adhesive*, and suppurative or diffuse.

Causes.—Frequently obscure. May arise from local injury or strain from over-exertion in ill-nourished and cachectic persons, or in those the subject of gout. Sometimes due to blood-poisoning and extension of inflammation to the veins from adjacent parts. *Adhesive Phlebitis* often arises, there is no doubt, from the spontaneous coagulation of fibrin within the vein, which becomes deposited on its serous lining. When a clot of fibrin is thus formed, further coagula form and become deposited upon or around it, until the vein becomes completely plugged, giving rise to the condition called *Thrombosis*. Phlebitis of the femoral and iliac veins is often met with in puerperal cases, giving rise to the condition known as *phlegmasia dolens*, or “white leg.”

Symptoms.—Local pains and tenderness are the first symptoms developed. Soon the vein feels hard, knotty, and enlarged, and if it is a superficial vein, the skin over its course becomes red and inflamed. There is always some constitutional disturbance which is very considerable in cases where the larger and deep veins are affected. In many cases, the affected limb becomes greatly swollen and œdematous below the affected part. In the *diffuse* variety, the swelling

is very great and the inflammation, which is of an erysipelatous character, extends for a considerable distance from the vein, especially implicating the cellular tissue.

Course and Terminations.—Circumscribed phlebitis, when of a mild character, if early and properly treated, usually runs a favourable course, the circulation soon becoming re-established. But in many cases, the vein becomes obliterated, and the inflammation proceeds to suppuration, giving rise to a local or diffused abscess. When this occurs there is great danger of blood-poisoning with a fatal result, and in many cases the patient dies from exhaustion. A fatal termination is, however, by no means the only one to be anticipated ; many cases of suppurative phlebitis of a severe character do recover, although not unfrequently the affected limb is permanently injured. Sudden death has been known to take place from the detachment of a clot which has been carried by the circulation to the heart and caused embolism of the pulmonary artery.

Treatment.—Rest in bed is imperatively called for. Locally, hot fomentations at first give great relief. Afterwards, the affected parts may be enveloped with lint saturated with strong lead lotion, and covered with oiled silk. The application of leeches is of doubtful benefit. Saline aperients to be given when necessary, and chloral or opium to procure sleep if the pain is severe. Diet to be light and nutritious. In most cases of the diffuse variety, the free administration of port wine or other stimulants is imperative. If suppuration takes place, it must be treated by poulticing and early evacuation in the usual manner.

LXXXVII.—PHLEGMASIA DOLENS, OR WHITE LEG.

Definition.—A disease commonly occurring in women after child-birth, characterised by pain and swelling of one leg—rarely both being affected—and depending upon inflammation of the femoral and iliac veins.

Causes.—Much controversy has taken place as to the cause of the disease, some contending that it is due to inflammation originating in the uterine veins, and extending along the iliac and femoral veins, whilst others assert that the local condition is due to coagulation of blood in the vessels, in consequence of the introduction of morbid matter into the blood.

Symptoms.—The chief symptoms are acute pain and swelling of the affected leg and thigh, which are preceded by constitutional disturbance, such as rigors, headache, feeling of faintness, quick pulse, dry furred tongue, loss of appetite and sleeplessness. The pain is usually first felt in the inguinal region, and gradually extends downwards along the limb. The leg sometimes swells to a great size, presenting a tense glazed appearance, pitting on pressure. The femoral vein can be felt as a hard cord; slight pressure causing pain. There is an entire loss of power in the limb. The lymphatics also become inflamed, and their course may be traced by the appearance of red lines on the surface of the skin. The disease usually comes on about the end of the first week after delivery, but may be delayed until the third or fourth week after. Coincident with the onset of the disease, the lochia is usually suppressed.

Terminations.—At the end of two or three weeks the pain ceases, and the swelling gradually subsides, but the limb recovers its power very slowly. A fatal result is rare, and the occurrence of abscesses, and cellular inflammation and suppuration, are less frequent than in cases of non-puerperal phlebitis.

Treatment.—The leg to be placed in such position as may be most comfortable to the patient, and kept warm by wrapping in wadding or cotton-wool, and lightly bandaged with flannel. Diet to be light and nourishing. Wine may be ordered if the patient is low or feels the necessity for stimulants. Bowels to be kept slightly relaxed. Pain should be relieved and rest procured by chloral draughts, or the hypodermic injection of morphia. If the pain is very severe, hot fomentations of poppy-heads, or belladonna leaves give great relief. Blisters have been recommended but are rarely necessary. Embrocation should never be used lest the friction detach a portion of coagulum. After the acute stage has passed, iron and quinine are the best medicines for internal use. When the patient is able to get about, great support will be found from the use of an elastic stocking reaching above the knee.

LXXXVIII.—PINGUECULÆ.

Definition.—The name given to small yellowish growths about the size of a split pea, which occasionally form beneath the ocular conjunctiva, near the margin of the cornea, chiefly met with in elderly people.

Treatment.—Should be removed, if troublesome, by making a small incision of the conjunctiva over

the growth, which should then be seized with a pair of forceps and carefully dissected away with a small knife. After removal, the edges of the conjunctiva to be brought together by means of a fine suture.

LXXXIX.—POLYPUS.

Definition.—The name given to a class of tumours generally of a soft, gelatinous nature, which arise from mucous surfaces.

Varieties.—The chief varieties are :

- (a) Mucous, gelatinous, or fibro-cellular.
- (b) Fibrous.
- (c) Fibro-cystic.

Mucous and fibrous polypi are most commonly met with in the nostrils, uterus, vagina, and external auditory meatus; fibrous polypi are met with in the nostrils, uterus and rectum, and fibro-cystic in the uterus.

Mucous polypi are simply expansions of the tissues which enter into the formation of the mucous membrane. *Fibrous* polypi generally spring from the tissues beneath the mucous membrane, sometimes penetrating so deeply as to become attached to bone. The *fibro-cystic* polypus probably obtains its distinctive characteristic from the expansion of one or more of the follicles of the cervix uteri. The situations in which polypi are found are, the nose, ear, pharynx, larynx, palate, uterus, vagina, rectum, bladder, and occasionally the antrum and frontal sinuses.

Treatment.—The general and most satisfactory treatment of all kinds of polypi is early and entire removal by means of the forceps, ligature, wire-

écraseur, or galvano-cautery; although, sometimes, small mucous polypi may be destroyed by the application of caustic, or astringent powders such as alum or tannin. The special treatment of nasal, aural, and uterine polypi, will be considered under their respective headings.

XC.—POLYPUS AURI.

Characters, etc.—Polypus of the ear is not at all an uncommon affection, being met with generally in persons who have suffered from chronic inflammation of the meatus with discharge of purulent matter. Unless very small, polypi of the ear are readily detected. They are usually of a bright-red colour, highly vascular, and bleed readily when touched. In shape they are variable, being either grape-like, lobulated or ragged, and irregular. Sometimes one large polypus fills the external auditory canal, and protrudes from the meatus; at others, it will be found that the bottom of the canal is occupied by several small bright-red polypi. They may take their origin either from the sides or floor of the canal, or from the membrana tympani; and, in some cases, they doubtless spring from the cavity of the middle ear.

Symptoms.—The chief symptoms are, pain and irritation of the affected ear, tinnitus aurium, impaired hearing, discharge of purulent matter.

Treatment.—If discovered when very small, aural polypi may be destroyed by repeated applications of lunar caustic, or dry powdered alum, or tannin; but the most satisfactory treatment is removal by means of a very fine pair of forceps, or Wilde's snare. Great care is necessary in the removal of polypi which

appear to spring from the membrana tympani, or the cavity of the middle ear, lest permanent damage be done to the ossicles, and other delicate structures.

XCI.—POLYPUS NASI.

Varieties, Characters, etc.—Polypus of the nose may be gelatinous or fibrous. Occasionally, growths of a malignant character, arising within the nasal passages, assume the polypoid form; but the term polypus, should be confined to growths of a non-malignant character. Generally one nostril only is affected, but sometimes cases are met with in which both nostrils are the seat of polypi. They are most commonly attached to the mucous membrane of the middle turbinated bone, but may spring from any other portion of the nasal cavity, although it is exceedingly rare to meet with one attached to the membrane covering the septum. The gelatinous polypus is soft, elastic, of a greyish colour, somewhat translucent, lobulated and pedunculated, and varies in size from a small grape, or less, to a date, or, in rare cases, even larger. The *fibrous* polypus is comparatively rare. It occurs at a more advanced period of life than the gelatinous variety; is firmer and more resistant, generally springs from the upper and posterior part of the nares, takes its origin from the periosteum, is more vascular, and is essentially fibrous in structure.

Symptoms.—The earliest and most prominent symptom is a sense of “stiffness” in the affected nostril, as if suffering from severe catarrh, followed by an almost continuous thin watery discharge. As the tumour grows larger, respiration becomes somewhat impeded, the patient requiring to breathe with

open mouth when asleep. The voice becomes altered, there being a decided nasal twang, and some words cannot be pronounced distinctly. Taste and smell, in cases of the larger polypi, become impaired, and the nose assumes a broad appearance, through expansion of the nasal fossæ in extreme cases giving rise to the characteristic appearance known as frog face. The diagnosis can generally be made clear on examination with the bi-valve speculum.

Treatment.—Small gelatinous polypi may be cured occasionally by the use of tannin, or other astringent powder, in the form of snuff, or by blowing the powder into the nostril by means of a glass tube, but the most satisfactory treatment is complete abruption, by means of the forceps, noose, or écraseur.

XCII.—POLYPUS UTERI.

Varieties, Characters, etc.—Various forms of uterine polypi have been described by gynæcologists, some of which are very rare, and, perhaps, never seen in ordinary medical practice. The usual forms are :

- (a) The *Mucous Polypus*, which arises from the mucous lining of the uterus, generally of the cervix. It seldom exceeds the size of a cherry ; is soft, red, highly vascular, and pedunculated.
- (b) The *Fibrous Polypus*, which takes its origin from the submucous tissue, and is much firmer in texture, containing a large proportion of fibrous tissue. It grows to a much larger size than the mucous polypus, is pedunculated, the pedicle often being so long as to permit the tumour to hang down from the os uteri into the vagina.

- (c) The *Glandular Polypus*, which arises from the cervix of the uterus, and whose structure is largely composed of hypertrophied mucous follicles of the cervix, together with mucous and fibro-cellular tissue.
- (d) The *Fibro-cystic Polypus*, which springs from some portion of the cervix uteri, and which, when cut into, is found to contain one or more cysts. These cysts are generally due to enlargement of the mucous follicles of the cervix, although occasionally they appear to be new formations.

Symptoms.—Pain of a bearing down character, leucorrhœal discharge, and occasional hæmorrhage are the usual symptoms of polypus. The diagnosis is usually made clear by digital examination, or the use of the speculum.

Treatment.—Removal by means of the scissors, ligature, torsion forceps, or écraseur.

XCIH.—PRESBYOPIA.

Definition.—An abnormal condition of vision, commonly known as “old sight,” in which the person affected can only see small objects distinctly at a greater distance than the ordinary focal length.

Causes.—This affection depends upon a failure in the accommodatimg power of the eye and arises from senile changes in the fibrous structure of the crystalline lens, by which its elasticity becomes more or less impaired, so that the convexity of its anterior surface is not acted upon in the usual manner by the contractile efforts of the ciliary muscle. The changes which pro-

duce presbyopia usually take place at about the age of forty-five, although many persons retain their vision unimpaired to a later age, whilst some become markedly presbyopia considerably earlier in life.

Treatment.—The defect is easily remedied by the use of suitable convex glasses. Persons so affected, should be cautioned against straining the sight unduly, as in reading small type by artificial or insufficient light, etc.

XCIV.—PROLAPSUS RECTI.

Definition.—A relaxed condition of the mucous membrane of the rectum, often met with in children, and occasionally in adults, which permits it to be protruded from the anal orifice on action of the bowels, or on taking any unusual exertion.

Causes.—This affection may be induced by all causes which keep up an irritable condition of the rectum and neighbouring parts, or necessitates undue straining at stool, such as internal piles, polypus of the rectum, ascarides, stone in the bladder, habitual constipation, prolonged fits of coughing in elderly persons when the sphincter is relaxed.

Treatment.—When the bowel protrudes, it should be restored to its natural position as speedily as possible, which can generally be done by placing the patient in the prone position, and keeping up gentle pressure on the tumour with the fingers, covered with a piece of well-oiled lint. The recumbent position should be retained as much as possible, and, in children, it is advisable that they get the bowels relieved when in that position. Gentle laxatives to be given when necessary, and all sources of irritation to

be removed. If caused by piles, polypus, worms, etc., these must be treated in the usual manner. Among curative measures, the local application of cold in the form of ice, cauterisation of the mucous membrane with nitrate of silver, or nitric acid, and the injection into the rectum of astringent solutions, such as infusion of krameria, decoction of oak bark, tannic acid, and sulphate of iron. In very severe cases, it is recommended to remove a portion of the mucous membrane, either by ligature, or the clamp and cautery.

XCIV.—PTERYGIUM.

Definition.—The name given to a growth of connective tissue of a reddish colour, and triangular shape, which occasionally forms on the ocular conjunctiva, the apex being directed towards the cornea.

Causes.—Uncertain. It is usually met with in sailors, or persons who have lived in the tropics.

Treatment.—The only effective treatment is by the operation of transplantation. The eyelids being kept widely open by means of a speculum, the growth must be dissected off from the cornea, commencing at its apex, but the base should not be detached. A slit is then to be made in the conjunctiva parallel with the margin of the cornea, and the apex of the growth inserted beneath the conjunctiva through the slit and kept in position by means of one or two fine stitches. The abnormal tissue gradually wastes, and finally disappears. If simply dissected away and removed it is said that the growth will most probably return: but this rarely occurs after transplantation has been properly performed.

XCVI.—PTOSIS.

Definition.—A persistent dropping of the upper eyelid.

Causes.—Occasionally occurs as a congenital defect, sometimes as a result of injury to the levator palpebræ muscle, but is most frequently due to paralysis of the third nerve.

Treatment.—In congenital cases, and in those due to injury to the muscle, a cure should be attempted by removing an elliptical portion of the skin of the lid, and if this fails the pupil should be elongated downwards. If due to paralysis, galvanism may be tried, but the chief treatment should be directed to the cause of the paralysis.

XCVII.—QUINSY, CYNANCHE TONSILLARIS, OR ACUTE TONSILLITIS.

Definition.—Acute inflammation of one or both tonsils.

Causes.—Usually arises from cold, occurring in young persons of a strumous diathesis.

Symptoms.—First sets in with a feeling of chilliness, quickly followed by high fever with stiffness of the neck and jaws. There is acute pain of the tonsils and some swelling, which rapidly increases. When both are affected the swelling may be so great that the tonsils almost touch in the middle line. There is great difficulty in swallowing, breathing is impeded, and the voice becomes thick and indistinct. In two or three days, unless resolution takes place, evidences of suppuration appear in the neighbourhood of the affected tonsil.

Treatment.—A saline purgative should be given at first, followed by a mixture of ammonia and bark, or steel and quinine. Locally, steam should be inhaled frequently, and linseed poultices applied to the throat externally. If suppuration takes place, it is good practice to open the abscess early, but as many patients object to the use of the knife, this should not be insisted upon unless the symptoms are very urgent, as such abscesses usually burst in a few days without the aid of operative measures.

XCVIII.—RACHITIS, OR RICKETS.

Definition.—A disease of the bones which develops in early childhood, and in which there is a deficiency of earthy salts deposited in the osseous structures.

Causes.—The disease is essentially one of malnutrition, the subjects of it being almost always children who have been neglected and badly fed in infancy. A too exclusive diet of farinaceous food, potatoes, and sopped bread, often gives rise to the development of rickets, especially in conjunction with the want of fresh air and proper exercise. The children of scrofulous or consumptive parents are strongly predisposed to rickets.

Symptoms.—The earliest symptoms are those of general and muscular debility; dentition is retarded, the anterior fontanelle and cranial sutures remain open for months beyond the time that close union usually takes place. Profuse perspiration of the scalp is very common. Often rickety children appear to be fat, but the flesh is found to be soft and flabby. The articular ends of the long bones, especially at the wrist and ankle joints, become enlarged about the

time the child should begin to walk, and if allowed to stand alone or learn to walk the bones of the leg soon become curved, in bad cases giving rise to great deformity. The femora usually bend forward, whilst the bones of the leg most frequently bend forwards and outwards. Knock-knee, flat-foot, and curved spine are very common affections of rickety children but these should never occur in a marked degree if proper treatment is adopted early. The chest is often deformed, the sides being flattened, and the sternum unusually prominent, giving rise to the condition known as "pigeon-breast." The ends of the ribs at their junction with the cartilages are often nodular, this condition being known as the "rachitic rose-garland."

Treatment.—Good diet and fresh air are the two first essentials in treatment. The administration of cod-liver oil, Parrish's chemical food, steel and lime-water, are of great service, and some benefit may be derived from the use of salt—or sea-water baths. With a view to prevent deformity, the child should not be encouraged to stand or walk until the bones of the leg are sufficiently strong to bear the weight of the body. Unfortunately, medical or surgical aid is not sought in many cases until long after extreme deformity has taken place. In such cases attention must be directed to preventing the deformity increasing. In case of "knock-knee" or "bandy-legs" appropriate splints should be applied or steel supports worn, and in spinal curvature a proper apparatus be fitted. In extreme and persistent deformity of the bones of the leg great improvement may be effected by subcutaneous division of the bones, an operative procedure which is now largely practised with marked success.

XCIX.—RANULA.

Definition.—The name given to a cystic tumour containing clear glairy fluid, which occasionally forms in the floor of the mouth beneath the tongue.

Causes.—Due to obstruction of one of the mucous follicles beneath the tongue (glands of Rivinus). Formerly it was believed that these cysts were the result of obstruction of one of the salivary ducts, but close investigation has proved that this is not the case. The contents of the cysts differ entirely from salivary secretion. Occasionally these cysts are congenital.

Treatment.—The most effective treatment is to cut away a portion of the cyst-wall; or a seton may be passed through the cyst. No attempt should be made to dissect away the whole of the cyst-wall. If simply punctured the cyst almost invariably refills.

C.—RETINITIS.

Definition.—Inflammation of the retina.

Varieties and Causes.—There are several varieties of retinitis, classified according to the causes. Thus:

- (a) Simple retinitis, from injury to eyeball, exposure to sudden flashes of bright light, extension of inflammation from the choroid, iris, etc.
- (b) Hæmorrhagic retinitis, from hæmorrhage into the substance of the retina.
- (c) Pigmentary retinitis, from pigmentary degeneration of the retina.
- (d) Albuminuric retinitis, arising from Bright's disease.
- (e) Leucæmic retinitis, associated with leucocythæmia.

- (f) Embolic retinitis, associated with and arising from plugging of the central artery.
- (g) Syphilitic retinitis, associated with constitutional syphilis.

Symptoms.—The symptoms most commonly present are—deep-seated pain, intolerance of light, impairment of vision, and sensation as of flashes of light passing through the eyeball; but these are not always present. Retinitis may be present and vision be not sensibly impaired. The diagnostic signs can only be observed by the aid of the ophthalmoscope. These are hyperæmia of the retina, and more or less opacity, venous dilatation, whilst occasionally there are minute extravasations of blood in the course of the distended veins. In *hæmorrhagic retinitis*, the blood extravasations are extensive and most marked around the optic disc, from which they radiate as from a centre. *Pigmentary retinitis* is characterized by numerous pigmentary deposits in the substance of the retina, which, under the microscope, have an appearance resembling bone corpuscles. Night blindness and gradual contraction of the field of vision are very constant symptoms in this form of disease. In *albuminuric retinitis*, hæmorrhage and effusion in the retina occur in the early stage, followed by fatty and fibrous degeneration of its structure, and, later on, the retina atrophies. These changes may be distinctly observed with the ophthalmoscope. At first hyperæmia, with redness of the optic disc, then a cloudy appearance of the retina, especially around the optic disc: after a time, glistening white spots make their appearance, gradually coalescing in the form of a band around the disc. Small, white, glistening spots may be observed around the yellow spot. These do not coalesce. In the

later stages of the disease, the hæmorrhagic spots and opaque patches disappear, the retina becoming atrophied. In *leucæmic retinitis*, glistening spots may also be observed in the retina, but confined to the peripheral portions. The retinal vessels have a peculiar rose colour, and there is pallor of the optic disc. *Embotic retinitis* is characterized by sudden and complete loss of sight in the affected eye without apparent cause. With the ophthalmoscope the retina is seen to be dull and opaque, while the yellow spot has a bright red appearance. In *syphilitic retinitis*, no characteristic signs are revealed by the ophthalmoscope. The diagnosis is made by observing other constitutional signs of syphilis.

Treatment.—This varies according to the cause. As a rule, the primary disease is of the first consideration as regards treatment. In simple and syphilitic retinitis, mercury is of great service. Abstraction of blood from the temples by means of leeches affords relief in simple retinitis. In pigmentary retinitis galvanism by means of the continuous current, is said to be very beneficial. In all cases, entire rest to both eyes must be insisted upon, and they should be protected from bright light by means of blue shades or glasses.

CI.—RODENT ULCER.

Definition.—A disease of an ulcerative nature, closely allied to epithelioma, which usually attacks the face or head in persons past the middle period of life.

Symptoms.—Usually begins on some part of the face as a dry wart, which, after a time, begins to ulcerate. The ulcer spreads slowly but regularly in

all directions, destroying every tissue impartially as it advances. Unlike epithelioma, it does not spread by means of the lymphatics, or cause secondary growths. The parts attacked never heal, unless after surgical treatment. It rarely extends to the deeper tissues until after it has existed a considerable time. In severe old standing cases, it not only destroys the skin of the face, but the bones and cartilages of the nose, the eyelids, etc.

Treatment.—If possible, the disease should be removed with the knife, but if, as often happens, the case is unsuitable for excision, strong caustics or the actual or galvanic cautery must be used, care being taken to destroy all the diseased tissues. The best escharotics are chloride of zinc, potassa fusa, and acid nitrate of mercury. When completely removed or destroyed it does not break out afresh as frequently occurs in epithelioma.

CIL.—SCIRRHUS, CARCINOMA FIBROSUM, OR HARD CANCER.

Definition.—A form of cancer characterised by hardness of texture and slowness of growth.

Situation.—The most common seat of this form of cancer is the female breast, but it may occur in any tissue, frequent situations being the pylorus, rectum, uterus, testicle, tonsil, and the cutaneous system.

Characters.—Usually commences as a small hard nodule, which at first attracts but little notice. If the breast is the seat of the disease, the tumour is, as a rule, freely movable at first, but as it increases in size the adjacent tissues become infiltrated with cancerous deposit and it becomes gradually less movable, and at length the tumour is found to be firmly at-

tached to the bones of the chest deeply and to the skin superficially. By this time the tumour has grown to a considerable size, and the glands in the neighbourhood will probably be found to be affected, the disease having a great tendency to spread in the course of the lymphatics. After a time the skin covering the tumour becomes of a dark colour, and sooner or later ulcerates, the surface of the ulcer sloughs and gives rise to a very offensive discharge.

Terminations.—If allowed to run its course, scirrhus usually ends in death, although in some cases the disease remains almost stationary, the patient living for several years after the first appearance of the disease. This, however, is the exception. In most cases after the ulcerative stage sets in the patient manifests constitutional symptoms, the appetite fails, there is pain and sleeplessness, resulting in extreme debility and wasting. Ultimately death takes place from exhaustion, the patient previously exhibiting marked cachexia. In other cases, the ulcerative process extends until some large bloodvessel is opened and death results from hæmorrhage. Sometimes the internal organs become affected with secondary cancer, death arising from the internal complication. In rare instances the primary cancer appears to be arrested in its growth before reaching the ulcerative stage, either remaining stationary or wasting gradually until the tumour becomes completely atrophied.

Pathology.—On making a section through the centre of a scirrhus cancer, the hardness of the tissue causes a grating sensation. The appearance of the cut surface varies, in some cases it has a vascular appearance, in others, bloodvessels are almost entirely absent. Generally, the cut surface is of a bluish-grey colour,

and the centre is of stony hardness unless the degenerative process has made considerable progress, when there are numerous soft yellow spots, or small cavities containing blood or serum, dispersed throughout the tumour. On scraping the cut surface, juice of milky appearance may be collected, "cancer juice," which on microscopic examination will be found to consist largely of cancer cells. Under the microscope a thin section exhibits a dense fibrous meshwork with minute alveoli which contains cells of an epithelial type, the fibrous element largely predominating, and to which the density of this form of cancer is due.

Treatment.—Same as for cancer generally, early excision, when practicable, being the best surgical proceeding (*vide* Medullary Cancer, Aid LXV.).

CIII.—SPINA BIFIDA.

Definition.—A congenital protrusion, or hernia of the membranes of the spinal cord, in consequence of arrest of development of some portion of the bones forming the spinal column, most commonly the spinal processes of the lumbar, or sacral vertebrae.

Characters.—The hernial tumour is formed in the mesial line, is globular, usually about the size of an orange, tense and elastic. At times it is covered by the whole thickness of the skin; in some cases the skin is very thin, and has a congested appearance, whilst in others the skin over the tumour is deficient, the walls of the tumour consisting only of a transparent membrane. The tumour may contain serous spinal fluid only, but generally contains also more or less of the terminal portion of the spinal cord. Often the subjects of spina bifida are hydrocephalic, and paralysis of the lower extremities is frequently present.

Diagnosis.—There is rarely any difficulty in diagnosing this affection. Given a globular congenital tumour over the spine, the probability is that it is a case of spina bifida, and the diagnosis is certain if the tumour decreases in size and becomes lax when the child is asleep or lying down, and becomes larger and more tense when the child cries, or is held up in an erect position.

Prognosis.—Bad. Most cases terminate fatally, death generally arising from convulsions or paralysis.

Treatment.—In most cases, palliative treatment only can be adopted. The tumour should be protected against injury by a covering of cotton-wool and a well-adapted felt case, so fitted as to cause slight pressure on the tumour, with a view to prevent increase of size. Among curative measures the most promising is tapping, by means of a very fine trocar and gradual evacuation of the fluid contents. Several cures by this method have been recorded. Successful cases have also resulted from tapping and injection of solution of iodine, or iodine combined with glycerine, by which inflammation of the sac is set up. Excision and ligature have been adopted, but must not be resorted to if there is any evidence of the tumour containing any portion of the spinal cord or nerve trunks.

CIV.—STAPHYLOMA.

Definition.—The term applied to an abnormal condition of the eyeball, characterised by a bulging forward of the anterior surface, or a protrusion of a portion of the contents of the eyeball through a perforation in the cornea.

Causes.—May arise from a wound or from ulceration of the cornea.

Treatment.—If only a portion of the cornea is affected (partial staphyloma), the protruding portion may be removed, the cut edges of the cornea being brought together by fine silk suture. If the staphyloma is "total," abscission of the anterior portion of the eyeball is necessary.

CV.—VARICOCELE.

Definition.—A varicose condition of the spermatic veins, causing a swelling within the scrotum on the affected side.

Causes.—General debility, constipation, excessive venery, and masturbation in early youth.

Symptoms.—The scrotum is relaxed and pendulous, and on the affected side there is a swelling of a pyramidal shape, the base resting on the testis. When examined with the fingers, this swelling feels as if it were a bag of worms. The patient sometimes complains of dull, aching pain in the scrotum, and pains of the back and loins, especially after active exercise. The left side is more frequently affected than the right, which is probably due to the spermatic veins on this side being longer than those of the right side, and because the return of blood from them is frequently obstructed through the loaded condition of the sigmoid flexure of the colon.

Treatment.—This may be palliative or curative. The palliative treatment consists in wearing a nicely-adapted suspensory bandage, frequent bathing of the scrotum with cold water, the occasional use of aperients, and the improvement of the general health by tonics, etc. In severe cases, it may be advisable to

recommend the radical cure, which is effected by ligature of the veins, subcutaneously, or by making an incision through the scrotum, exposing the veins and ligaturing them with carbolized catgut, strict antiseptic precautions being adopted throughout. The operations for radical cure are not without danger to life, and the patient should be fully advised of this previously.

CVI.—VARIX.

Definition.—A dilated and hypertrophied condition of the veins, commonly called “varicose veins.”

Causes.—Generally obscure. Anything which obstructs the return of blood to the heart may cause the veins so obstructed to become varicose, such as pregnancy and abdominal tumours, which tend to produce varicose veins of the lower extremities. Hereditary predisposition, general debility, gout, and prolonged muscular exertion are also given as causes.

Characters and Symptoms.—The earliest symptom of veins becoming varicose is a dilated appearance, which at first may be confined to a limited portion of the vein. The dilatation extends along the vein in an irregular manner, giving it a knotted, tortuous appearance, and if superficial the blue colour of the vein is visible. The veins of the leg are most frequently affected, more especially the superficial ones, but those of any portion of the body may be so affected. Varix of the veins of the spermatic cord is called *varicocele*, and a similar condition of the veins of the rectum gives rise to *hemorrhoids*. When varicose veins of the leg are neglected they not unfrequently become so dilated that they burst, profuse hæmorrhage taking place. After rupture of a varicose

vein of the leg, the surrounding tissues often ulcerate, giving rise to what is termed a "varicose ulcer."

Treatment.—When arising from obstruction to the circulation, the first indication of treatment is to remove if possible the cause of obstruction, but if this is not advisable or possible, palliative measures must be adopted, such as rest, gentle pressure by bandages or strapping, the judicious use of aperients, and the improvement of the general health by tonics and generous diet. In varicose veins of the leg, cold bathing and friction in an upward direction are useful. An elastic stocking should be worn, or the affected leg may be bandaged from the toes upwards. In bad cases, when all palliative measures fail, it may be advisable to attempt a radical cure, by causing obliteration of the affected veins. Various measures have been recommended for this purpose, continuous pressure, the application of caustic pastes, excision of a portion of the diseased vein, subcutaneous division, ligature, etc. But the method recommended by most surgeons is that of *acupressure*, which is a comparatively safe and generally successful operation.

END OF PART II.



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